

# **Policy Analysis on Chinese Overseas Talents Return to Shanghai**

*Policy as the impetus for brain circulation*

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## **Abstract**

Ever since the Chinese overseas study and return policy was systematically proposed in 1992, the number of returnees has significantly increased. Both policymakers and scholars attach great importance to Shanghai - one of the most favourite cities for returnees. With respect to Chinese context, the thesis attempts to explore the policy impact on a new feature of human capital flows - brain circulation, especially the brain circulation to Shanghai. Hence, the thesis integrates policy analysis tools and factors for brain circulation, in order to achieve two objectives. First, starting from analyzing returnees' policy at two different levels, aims at discovering the similarities and differences between the national policy and Shanghai municipal policy. Second, it attempts to link the findings of policy analysis to factors that contribute to brain circulation, in order to explore whether policy is the main impetus that has an effect on brain circulation. Based on a large amount of policy documents and part of statistical data, the thesis applies the qualitative research strategy to conduct the study.

The thesis finds out that returnees' policy has a strong focus on attracting highly skilled returnees and corresponds to the features of brain circulation in such a way, from which it could be concluded that Shanghai municipal policy consolidates the national policy and is more efficient for implementation and attracting targeted returnees. Based on the policy analysis, the thesis evaluates four factors (globalization, dual citizenship, no movement barriers and boundaryless career) that stimulate brain circulation. Through direct policy guidance or indirect policy influence, the thesis finds out that to most extent policy is the main impetus for those factors. In terms of current situation, returnees' policy leads to a positive trend of brain circulation. Nonetheless, it still requires more studies and further developments.

Key words: Brain circulation; Policy analysis; Pull-back factors; Human capital;

Highly skilled labour force.

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## **Abbreviations**

|           |   |
|-----------|---|
| CCP       | Chinese Communist Party   |
| CSC       | China Scholarship Council   |
| CSCSE     | Chinese Service Centre for Scholarly Exchange   |
| HEIs      | Higher Education Institutions   |
| NPC&CPPCC | National People's Congress and Chinese People's<br>Political Consultative Conference    |
| MFA       | Chinese Ministry of Foreign Affairs   |
| MOE       | Chinese Ministry of Education   |
| MOP       | Chinese Ministry of Personnel   |
| MPS       | Chinese Ministry of Public Security   |
| MST       | Chinese Ministry of Science and Technology  |
| RCSPY     | Returned Chinese Scholar Pioneering Yearbook  |
| R&D       | Research and Development  |
| SORSA     | Shanghai Overseas Returned Scholars Association   |
| S&T       | Science and Technology  |
| WRSA-COSA | Western Returned Scholars Association Chinese<br>Overseas-Educated Scholars Association |





# **CHAPTER 1 INTRODUCTION**

## **1.1 Background of the study**

Globalization process affects many aspects of economic development, such as trade cooperation, innovation of information and communication technology (ICT) and increasing investment in R&D in general, and knowledge is regarded as the key factor for economic growth (World Bank, 2002). The process of gaining knowledge, for example through education and training, is the key investment with respect to human capital formation. The importance of human capital is manifested in economic growth and the competitiveness of the nation, wherein highly skilled personnel or the so-called “talent” contributes most to the national economic development. Therefore, countries attach great importance to attracting talent, for, human capital accumulation is the key pillar of long-term development (Kapur and McHale, 2005).

For the sake of economic growth, governments of developing countries encouraged their brightest graduate students and talented young scholars to study abroad in order to gain relevant international experience in R&D. For example, students/scholars from Asia and Africa went to developed countries such as the United States, the United Kingdom, Germany, France and Japan. These students were source of revenue for receiving higher education institutions, and those who specialized in science, engineering and technology were also valued for development of innovations and patents (Robertson, 2006). After a certain period of time, government expected these people to return to their home country and devote to home countries’ development. The skilled science and engineering workers who return were seen as a major determinant of the quality and flexibility of the labour force (Jonkers and Tijssen,

2008). However, the result was to the contrary of government's expectation, most of the highly-skilled people chose to stay abroad instead of returning to the home country. Therefore, human capital flows happened over time and the migration of highly skilled persons become a natural phenomenon in the knowledge society (Daugeliene and Marcinkeviciene, 2009).

The phenomenon of highly skilled people emigrating to the developed countries is called "brain drain". At the same time, the developed countries which absorb those highly skilled people, experience the so-called "brain gain". With respect to brain drain and brain gain, empirical studies focus on push and pull factors to explain brain drain and brain gain, where push factors relate to brain drain while pull factors relate to brain gain. The phenomenon of brain drain has existed among nations since the 1950s. The international competitiveness of developing countries is far behind that of developed countries; and better economic and political conditions in developed countries provide a better environment for talents to work and live. Therefore, for developing countries, this phenomenon will not be dissolved in a short-term period because of economic disparity among East and West.

Nonetheless, at the beginning of the 21<sup>st</sup> century, another phenomenon, brain circulation, occurred. Some highly skilled emigrants started returning to their home countries with their knowledge and skills, but maintaining the social and economic connection with the country they emigrated to. This phenomenon first happened between India/China and the United States (Saxenian, 2005). According to Saxenian, brain circulation first occurred in Taiwan, while, when it comes to mainland China<sup>1</sup>, this phenomenon first happened in Shanghai. However, brain circulation did not happen on as equally large scale as brain drain. Scholars indicate that this new phenomenon will fundamentally replace the phenomenon of brain drain in a globalized, knowledge-based world as brain circulation is a vital process for countries'

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<sup>1</sup> Mainland China excludes Macao, Hongkong and Taiwan.

economic development (Daugeliene and Marcinkeviciene, 2009). Factors that contribute to brain drain/brain gain/brain circulation will be discussed in detail in Chapter 3.

## **1.2 Rational**

Brain drain has become a hot research topic since the 1950s. The emigration rates of the highly skilled people from developing countries to developed countries has substantially increased since the 1990s (Kapur and McHale, 2005). On the one hand, scholars like Johnson and Regets (1998), Saxenian (2002; 2005), and Jonkers and Tijssen(2008) indicate that brain circulation has already happened in China; on the other hand, scholars like Zweig (1995) Chen (1995; 2007), Rapoport (2002) and Miao and Yang (2008) argue China has suffered enormous brain drain. Although Western scholars pay much attention to the new phenomenon of brain circulation, Chinese scholars still focus on the phenomenon of brain drain since this is the hot debate in domestic arena. Nonetheless, Zhang's study (1992 cited in Zweig and Chen, 1995) indicates that policy is the dominant factor that contributes to brain drain. Thus the present study attempts to explore whether policy is the dominant factor that contributes to brain circulation. As was already stated, Saxenian (2002) indicates brain circulation first happened in Shanghai. Despite Shanghai's social-economic status, which accounts for 1% of the total population and 0.06% of the total territory, it contributes one-eighth of the GDP. The Shanghai municipal policy with respect to overseas returnees may have effect on brain circulation. Thus the present study attempts to compare the national policy with local policy (Shanghai municipal policy), in order to find out the relationship and differences between the two and in what aspect they may have effect on brain circulation.

The development of national policies concerning overseas study and return is a complicated process (Chen, 2007). According to Chen (2007), the establishment of overseas study and return policy has happened in three phases. The third phase pays much attention to overseas returnees while the first and the second phase mainly focus on students going abroad. Thus policies in the third phase are much more comprehensive and systematic. Moreover, perceiving from the policy documents (RCSPY, 2007), local policy has been systematically developed during the third phase. Thus, the present study will focus on the third phase. Besides, the study will concentrate on the aspect of returnees' policy rather than the aspect of overseas study policy. The present study will focus on the latest revised and promulgated policy documents (2001's national policy and 2005's local policy) to conduct the research.

### 1.3 Research questions

The main problem of the study is: **whether policy is the dominant factor which contributes to Shanghai's brain circulation and in what aspects it may have an effect on brain circulation.** The present study is thus guided by the following questions:

- 1) What are the key characteristics of overseas returnees' policy in the national level? What are the key characteristics of overseas returnees' policy in Shanghai municipal level?
- 2) What are the differences and similarities between policies in the above two levels?
- 3) How does returnees' policy affect brain circulation?
- 4) What are the implications for the policy development?

## 1.4 Concepts definitions

The present study is focused on the following concepts (all of which will be discussed in detail in Chapter 3): human capital, highly skilled, brain drain, brain gain, brain circulation, push factor, pull factor, pull-back factor and policy process.

- 1) *Human capital* refers to the stock of working competence, knowledge and personality attributes to perform labour and produce economic value.
- 2) *Highly skilled* refers to individuals with a tertiary education or indentified by the type of work.
- 3) *Brain drain* refers to the large-scale emigration of individuals with technical skills or knowledge, and it is often considered to be a detrimental phenomenon for the country of departure.
- 4) *Brain gain* is the opposed phenomenon of brain drain, refers to the highly skilled individuals emigrating to the developed countries and is considered to be beneficial for the country of destination.
- 5) *Brain circulation* refers to process in which emigrants return home to establish business relationships or to start new companies while maintaining social and economic ties to the immigration countries.
- 6) *Push factor* refers to factors that motivate highly skilled people to leave their home countries.
- 7) *Pull factor* refers to factors that motivate highly skilled people to leave for the developed countries.
- 8) *Pull-back factor* refers to factors that contribute to brain circulation, i.e., factors that motivate the overseas students<sup>2</sup> to return to the home country.
- 9) *Policy analysis* refers to analysis of the process of policy development and analysis of the policy content, i.e., policy problems, policy objectives, policy

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<sup>2</sup>Overseas students refer to Chinese citizens who graduate from foreign HEIs or scholars/researchers graduate from domestic HEIs and study in foreign HEIs/research institutes more than one year.

normative basis, policy instruments and policy linkages.

## 1.5 Methodology

### *Qualitative approach*

Quantitative research and qualitative research are two different social research approaches. Generally, qualitative approach has a strong dominance in analysis of official documents and statements, interviews and surveys and attempts to use words to present relevant findings, while quantitative approach attempts to use numbers to present relevant findings (Bryman, 2008). Policies to most extent are official documents and therefore the present study chooses the qualitative approach to conduct the study. As Bryman indicates, qualitative research is an inductive research which generated by theories. On the one hand, it has an epistemological position regarded as interpretivist that attempts to interpret the world and stress the understanding of the world; on the other hand, it has an ontological position regarded as constructivist that indicates outcome of interactions between individuals (Bryman, 2008:366). The present study fulfils the nature of qualitative research, as it is generated by theories proposed by empirical studies; it will interpret the situation with respect to brain circulation; it will indicate what factors contribute to brain circulation and analyze the policy impact rather than simply describe a phenomenon of brain circulation.

The present study is also comparative in design. In comparison with the national policy and Shanghai municipal policy, the present study attempts to find out the similarities and differences between the two. Hantrais (1996 cited in Bryman, 2008) defines that comparative research aims at “...*seeking explanations for similarities and differences or gaining a greater awareness and a deeper understanding of social reality in difference national contexts...*”. At the same time, the study is a case study

to a certain extent. Case study is applicable for in-depth investigation in a single individual, a group, a community and etc (Bryman, 2008). In this way, the present study which is focused on Shanghai could be regarded as a case study.

### ***Source of data***

As the main focus of the present study is to analyze official documents related to the policy concerning overseas returnees in different levels, the sources of official documents all come from Returned Chinese Scholars Pioneering Yearbook (2007-2008; shortened as RCSPY). With respect to policies concerning overseas returnees, the present study will analyze and compare the national policy - *Circular of Matters Relating to Students Studying Abroad (1992)*, *Provisions on Encouraging High-level Overseas Highly Skilled People Return to the Country and Establishing Their Own Business (2000)* and the municipal policy - *Regulations Concerning Overseas Returned Students Starting Business in Shanghai (2005)*. The source of official documents aside, the present study will apply statistical data as well. The sources of statistical data like R&D investment, funding and revenue are collected and arranged from China Statistical Yearbook (2009) and Shanghai Yearbook (2003-2007). In terms of information concerning overseas communities, government service offices and projects, information materials are collected from official websites.

### ***Delimitation and Limitation***

Ever since the phenomenon of brain circulation emerged, scholars paid much attention to its features and trends. Some studies (Saxenian, 2002) focus on individual experience or Chinese Diaspora to analyze brain circulation, in order to observe the behaviour of a certain group; some studies (Tung, 2008; Daugeliene and Marcinkeviciene, 2009) describe or compare policies among nations to find out the disparities and achievements on different contexts; some other studies (Daugeliene

and Marcinkeviciene, 2009) attempt to explore its theoretical framework. Thus the exploratory study has two delimitations: firstly, different from previous approaches, it attempts to link policy analysis to factors that stimulate brain circulation. Secondly, in terms of factors concerning human capital flows, this study will not evaluate all factors in that area. Thus, the present study will estimate the policy initiatives on globalization, no movement barriers, dual citizenship and boundaryless careers.

Qualitative approach is focused on in-depth investigation which may neglect some other aspects of the full picture. Therefore, the present study has two limitations: firstly, as the phenomenon of brain circulation does not appear for long, it is difficult to generalize the findings. The focus of this study (Shanghai) has its own features which may be resulted in limitation of generalization as well. Secondly, in terms of the authenticity, statistical data used in this study are all raw data. Statistical data are collected from Chinese official websites and yearbooks. Generally, data provided by government are considered more accurate and authoritative than data provided by non-government organizations. However, the official data still have limitations. The bias of official data which attempts to present the positive side of a phenomenon, especially those data are related to reflect capacities of a government, will somewhat affect the validity of the data. The imprecise classification of data which presented in section 4.1 is one of the examples.

Being a qualitative research, this is an in-depth study that will be focused on brain circulation in political perspective; it is an exploratory study which is based on theories utilized in education area and concepts given by empirical studies. Although the tentative study has several limitations, it will try to present feasible and credible findings.



## **1.6 Structure of the thesis**

Following Chapter 1, Chapter 2 presents situations with respect to Chinese context, in order to provide a comparable view on another side of human capital flows - brain drain. Chapter 2 starts from presenting an overview of policy reform from 1978 to 2006 in national level. In accordance with brain drain in different policy phases, factors that contributed to China's brain drain will be discussed afterwards.

Chapter 3 consists of two sections. The first section reviews the literature on phenomenon concerning human capital flows - brain drain, brain gain and brain circulation; it discusses factors concerning each phenomenon-pull/push factors for brain drain/brain gain and pull-back factors for brain circulation; it presents literature on policy analysis as well. With respect to the empirical studies, the second section attempts to construct an analytical framework on the basis of the notion of policy content (Gornitzka, 1999) and the notion of factors which stimulate brain circulation (Tung, 2008).

Chapter 4 is composed of four sections. First, it starts from presenting statistical data concerning number of returnees in Shanghai. Second, it interprets policies concerning returnees at the national and local level. Then it presents the main projects and communities with respect to relevant policies. The last section describes the status quo of R&D funding.

Chapter 5 includes three parts which is the core of the thesis. The first section helps to understand central ideas and main argument of the national policy, while the second section attempts to analyze the Shanghai municipal policy. The third section evaluates the implementation of overseas returnees' policy on the basis of the first two sections.

Chapter 6 focuses on the research questions and presents main findings of the thesis. Firstly, it briefly summarizes what has been discussed in Chapter 5. Secondly, it presents the main difficulties of conducting the thesis and reflecting the analytical framework. Finally, it gives suggestions for further research and policy improvement

## CHAPTER 2 THE CHINESE CONTEXT

### 2.1 Overview of policy reform process

In terms of resolving problems left by the “Culture Revolution” and overall development, Deng Xiaoping proposed the so called “Four Modernizations”<sup>3</sup> reform and policy of opening up of China (Wang, 2005). On 22 December 1978, Chinese leadership adopted economic reform at the pivotal Third Plenum of the 11<sup>th</sup> Congress of the Chinese Communist Party. On the basis of this reform and policies of opening-up, the Chinese Ministry of Education (MOE, later renamed the State Education Commissions; renamed MOE again in 1998)<sup>4</sup> proposed the document - *Select Students to Study Abroad* in 1978. To carry out specific works with respect to the selection of students that would go to study abroad, MOE held the *Conference of Culture Counsellors of Chinese Embassies* later on. The agenda of the conference contained information on how to choose and send students/scholars abroad, and it also focused on formulating an allocation plan for selected people (1978 to 1979; Chen, 2007). This was how the Chinese overseas study and return policy gradually began to take shape.

As presented in Table 1, the policy process had the following three phases: the initial phase (1978-1985), the readjustment phase (1986-1991) and the developing phase (1992-2006) (Chen, 2007; Miao and Yang, 2008).

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<sup>3</sup> Four Modernizations refer to the modernization of agriculture, industry, science and technology, and the military.

<sup>4</sup> MoE and SEC are the same government organ. In order to eliminate confusion and misunderstanding, the whole thesis will apply MOE hereafter.

**Table 1 Periodization of the national overseas study policies (1978-2006)**

| <b>1978-1986</b> |              | <b>The initial phase</b>   |
|------------------|--------------|--|
| <b>Year</b>      | <b>Month</b> | <b>Policies and the key points</b>   |
| 1978             | June         | Deng Xiaoping pointed out the importance of increasing number of overseas students; China decided to send people abroad to study subjects other than language  |
|                  | August       | MOE document - <i>Select Students to Study Abroad</i> was approved   |
| 1980             | October      | MOE document - <i>Concerning How to Manage Overseas Students</i> was approved; MOE decided to increase quota of students going for master degree and decrease quota of students going for bachelor degree. |
| 1981             | January      | State Council <sup>5</sup> <i>Regulations on People Who Study Abroad at Their Own Expense</i> ;  |
| 1983             | July         | <i>Notification of Distributing Jobs for Returned Students</i> was proposed and approved by MOP (Ministry of Personnel) and MOE.   |
| 1984             | December     | State Council renewed <i>Regulations on People Who Study Abroad at Their Own Expense</i> which aimed at reducing the restrictions.   |
| <b>1986-1989</b> |              | <b>The readjustment phase</b>  |
| <b>Year</b>      | <b>Month</b> | <b>Policies and the key points</b>   |
| 1986             | March        | National Conference on Study Abroad expanded the authority of provinces and cities to send people abroad at their own expense  |
|                  | December     | No.107 document - <i>Notification of Improving and Strengthening Issues for Returnees</i> was shaped by MOE and approved by the State Council  |
| 1987             | December     | <i>Certain Interim Provisions on the Work of Sending Personnel Abroad</i> approved by MOE  |
| 1990             | January      | <i>Provisions for Persons with University Graduate and Postgraduate Qualifications Study Abroad at Own Expense</i> ; a supplement for 1986's regulations.  |
| 1991             | Summer       | New regulation that graduates should have 5 years work experience before going abroad  |

<sup>5</sup> State Council is the highest executive organ of State power, as well as the highest organ of State administration. MOE is under the governance of the State Council.

| 1992-2006 |        | The developing phase  |
|-----------|--------|---|
| Year      | Month  | Policies and the key points   |
| 1992      | August | No.44 document - <i>Circular of Matters Relating to Students Studying Abroad</i> . The circular was regarded as the general policy. It offered incentives to return, especially better living and working conditions, grants for research, freedom to go out again, and right to import autos and computers duty free |
| 1993      | April  | Conference on the “Work of Sending Personnel to Study Abroad” relaxed standards for studying abroad.  |
|           | June   | <i>Joint Circular on the Placement of Returned Students</i> . Key points: if some students want to move to work in other units, personnel departments should try to meet their requests; returnees can apply for work in all areas of the economy or set up their own Companies                                       |
| 2000      | July   | <i>Provisions on Encouraging High-level Overseas Highly Skilled People Return to the Country and Establishing Their Own Business</i>  |
| 2001      |        | <i>Provisions on Encouraging High-level Overseas Talent to Serve the Country in Various Forms</i> . Key points: “serve the country in various forms” instead of “return to the country”.  |
|           |        | <i>Manage the Pioneering Parks for Returnees</i> . Key points: help returnees to establish their own business and cultivate hi-tech enterprises and scientific entrepreneurs.   |

(Source: data in Jan 1979, 1981, 1984, Mar 1986, 1987, 1990, 1991 and 1993 come from Zweig, 2002; data in Jun and Aug 1978, 1980, 1983, Dec 1986, 1992, 2000 and 2001 come from Chen, 2007; data are arranged by the author)

During the initial phase (1978-1985), the initial works mainly focused on education exchange, how to select students, how many students should be selected and how to distribute jobs for returnees. These opportunities were controlled by Chinese MOE, therefore, government- and unit<sup>6</sup>-sponsored students were the main types of overseas students. In 1981, the first document concerning self-financing students - *Regulations on People Who Study Abroad at Their Own Expense* was approved. *Regulations* were

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<sup>6</sup> Unit is a term which has Chinese characteristic. It refers to state-owned enterprise, public organization and institution.

very strict, such as age limitation and political background check. Besides, undergraduate students were not allowed to go abroad (Chen, 2007). In this sense, proportion of self-financing students was quite small; proportion of master and doctoral students were more than that of bachelor student. In 1984, *Regulations* was renewed. Education background, age and working years were not constrained by the *Regulations* (Chen, 2007). On the other hand, *Notification of Distributing Jobs for Returned Students* was proposed by MOE in 1983. *Notification* specified unit-sponsored students should go back to their original jobs, government-sponsored students should be distributed jobs by government and self-financing student could have wider choices (they had to find jobs by themselves).

The second phase (1986-1991) was called readjustment phase. No.107 document - *Notification of Improving and Strengthening Issues for Returnees* was shaped by MOE and approved by the State Council in 1986. It first comprehensively expounded the overseas education policy. For example, it regulated the scale of government-sponsored students and defined the enterprise- and government-sponsored students (Chen, 2007). Besides, it eased the requirements for self-financing students. For example, undergraduate students were allowed to go abroad as self-financing students; their undergraduate status could be retained for one year. Self-financing students become the main group of students studying abroad. However, due to decreased number of returnees, especially the self-financing students, government tightened the overseas study policies in 1987 (Zweig and Chen 1995). In 1989, the Tiananmen Square Incident made the situation even more complicated. Government set even stricter regulations concerning studying abroad issues in 1990 and 1991.

The third phase (1992-2006) was the developing phase. In 1992, Deng Xiaoping's

south tour speeches<sup>7</sup> pointed out the importance of education exchange and attracting overseas talents. Thus the State Council proposed No.44 Document - *Circular of Matters Relating to Students Studying Abroad*. The *Circular* expounded a series of policies aimed at solving problems left by Tiananmen Incident. The national policy "supporting study abroad, encouraging those who complete their studies to return home and coming and going freely" was implemented (Zweig and Chen, 1995; Zweig, 2002; Chen, 2007). In terms of the national policy, a series of reforms were carried out. On the one hand, government attached great importance to the overseas study aspect. For instance, the government established the China Scholarship Council (CSC) in 1995, set up the academic exchange project in 2000 and set the "advanced research scholar" in 2002. On the other hand, government took overseas returnees' policy into account: establishing Chinese Service Centre for Scholarly Exchange (CSCSE), supporting the "Spring Sunshine Project" and "Yangtse Scholar Award Project" for temporarily returned scholars, and starting industrial parks for returnees with funding to support their research and business ventures (Chen, 2007). In terms of policy proposed in the developing phase, the thesis will present it in detail in Chapter 4.

## **2.2 China's brain drain in different phases**

Chinese overseas students who emigrated to developed countries contributed significantly to the economic growth for the host countries. According to MOE (2009), from 1978 to 2009, the total number of Chinese overseas students was more than 1.62 million. The returnees' proportion was 30.68% (about 0.497 million). Until 2009, there were more than 1.123 million people staying overseas, wherein 73.29% (about 0.823 million) of them were studying bachelor, master, doctoral, postdoctoral degree or doing short- and long-term academic visit and exchange (MOE, 2009). In terms of

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<sup>7</sup> In 1992, Deng visited Wuchang, Shenzhen, Zhuhai and Shanghai, aimed at seeking solutions for domestic misgivings and confusion among some scholars and even officials about the country's reform and development.

study countries, 35.4% of the total Chinese overseas students were in the United States and Canada, 25.1% were in Asia and 24.2% were in Europe. Specifically, number of Chinese scientists and engineers was a big proportion of the total migration rate to the United States and contributed significantly to the brain power of the United States (Adams, 2003; Saxenian, 2005). With respect to the policy reform concerning overseas study and return in different phases, there is a dramatic change from the initial phase to the developing phase. At the beginning, only few selected students went to the developed countries while tens of thousands students studied abroad in recent years (Miao and Yang, 2008).

### ***China's brain drain in the initial phase***

During the initial phase, the selected people went abroad to study mainly in the area of science and technology and to acquire skills characteristic for the Western economy and culture. After graduation, most of them were supposed to go back to their original working place or take assigned jobs by government. Government selected qualified people through rather strict rules and procedures, which included background check (political background), examinations/recommendations (English test or recommended by professionals), age limitation (college student or under were not allowed to apply). Table 2 indicates number of students studying abroad and number of returnees in the period 1979-1982. As can be seen, there were 9,149 students going abroad from 1979 to 1982 and 3,652 returned. Among them, more than 5,000 Chinese scholars and students visited or studied in the United States while few had stayed (Miao and Yang, 2008). Remarkably, in 1982, number of returnees reached the highest level during the initial phase. There was no reason (official documents or empirical studies) to explain why many people returned in 1982. Perhaps, government- and unit-sponsored students were the main groups of students studying abroad during that time. According to Zweig and Chen (1995), government- and unit-sponsored students were more likely to return due to the fact that most of them had language difficulties and



strong family ties with the home country, they gained certain working experience before they went abroad, and they were regarded as pioneers and were considered very important by the government (Miao and Yang, 2008). Nonetheless, the brain drain in the initial phase did exist on a small scale.

**Table 2 Statistics on people going abroad and returnees in each year (1978-1982)**

|       | Overseas students | Overseas returnees |
|-------|-------------------|--------------------|
| 1978  | 860               | 248                |
| 1979  | 1777              | 231                |
| 1980  | 2124              | 162                |
| 1981  | 2922              | 1143               |
| 1982  | 2326              | 2116               |
| Total | 9149              | 3652               |

(Source: Miao and Yang, 2008 and arranged by the author)

### ***China's brain drain in the readjustment phase***

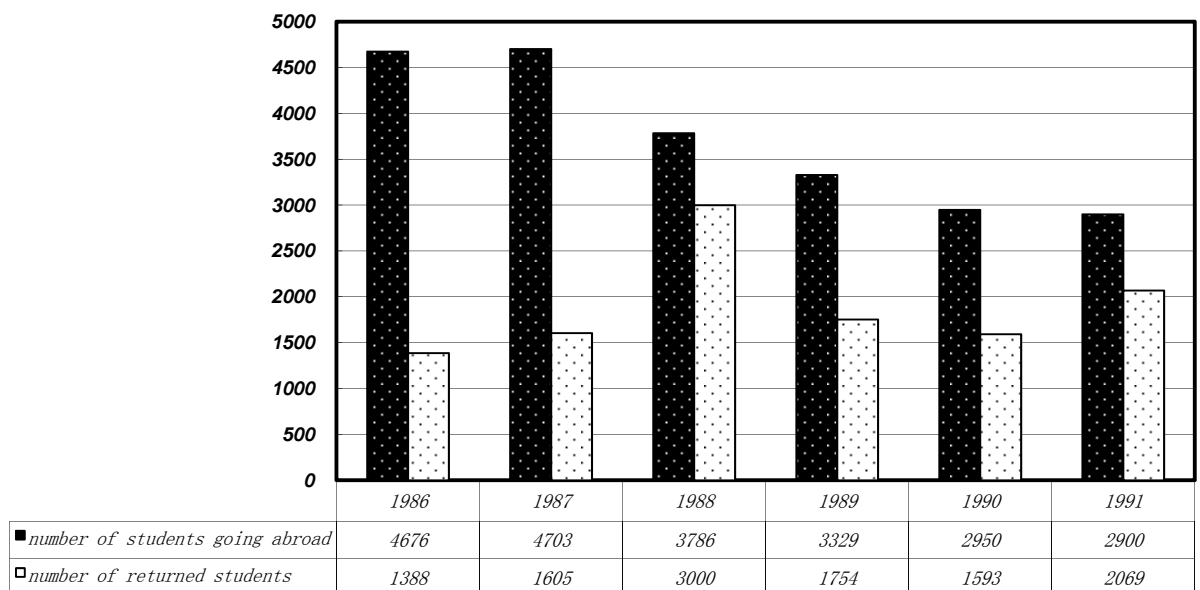
The second phase was rather complicated. The rules were first tightened with respect to self-financing students. After the Tiananmen Incident, the political environment became more unstable and people distrusted government. According to Figure 1, there is an obvious decrease in number of students going abroad since 1988. For instance, Ming Pao<sup>8</sup> (1988 cited in Zweig, 2002) reported that the number of students to the United States was cut from 6,000 to 500 by Chinese government in 1988. Although the reduction had never been put into effect, Chinese government had tightened and limited quota of students sent abroad. On the other hand, number of returnees increased in 1988. According to Zweig (2002), it might be a result of the Chinese government requiring university lecturers to shift from private passport to public passport and apply for J-1 visa rather than for F-1 visa, as J-1 visa was more

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<sup>8</sup> Ming Pao is a Hongkong-based newspaper which is famous for its freedom of expression.

restrictive than F-1 visa. Therefore, most of the scholars were “forced” to return because of visa limitation. In 1989, Tiananmen Incident broke out. Figure 1 shows a decrease trend of returnees. Zhang’s study (1992 cited in Zweig and Chen, 1995) suggested that people were more likely to stay abroad due to unstable political situation, which might have lead to China losing a great number of talents during the second phase of the study abroad policy. The unstable political environment might have made students lose confidence in the government. In the same year, Chinese government set a very restrictive rule: people who applied for overseas studies should work in a public organization for at least 3 years; alternatively they could choose to pay up to 1,460 USD. However, the per capita annual disposable income of urban residents was only about 200 USD per month at that time (Bai and Zhou, 2003). One can imagine that people might have a negative feedback to this change. Besides, countries such as the United States provided a less strict immigration law. On June 4 1989, the U.S. government expanded the scale to permit Chinese students staying in the country with an easier access (Zweig and Chen, 1995). In 1990, following President George Bush’s order, all Chinese in United States as of April 1990 were supposed to apply for permanent residence and all J-1 visa holders to shift to F-1 visa (Zweig, 2002). Most of overseas students chose to stay in the United States and other developed countries (Zweig and Chen, 1995; Chen, 2007). China’s brain drain was rather large in this period.

**Figure 1 Annual distribution of number of students going abroad and number of returnees (1986-1991)**

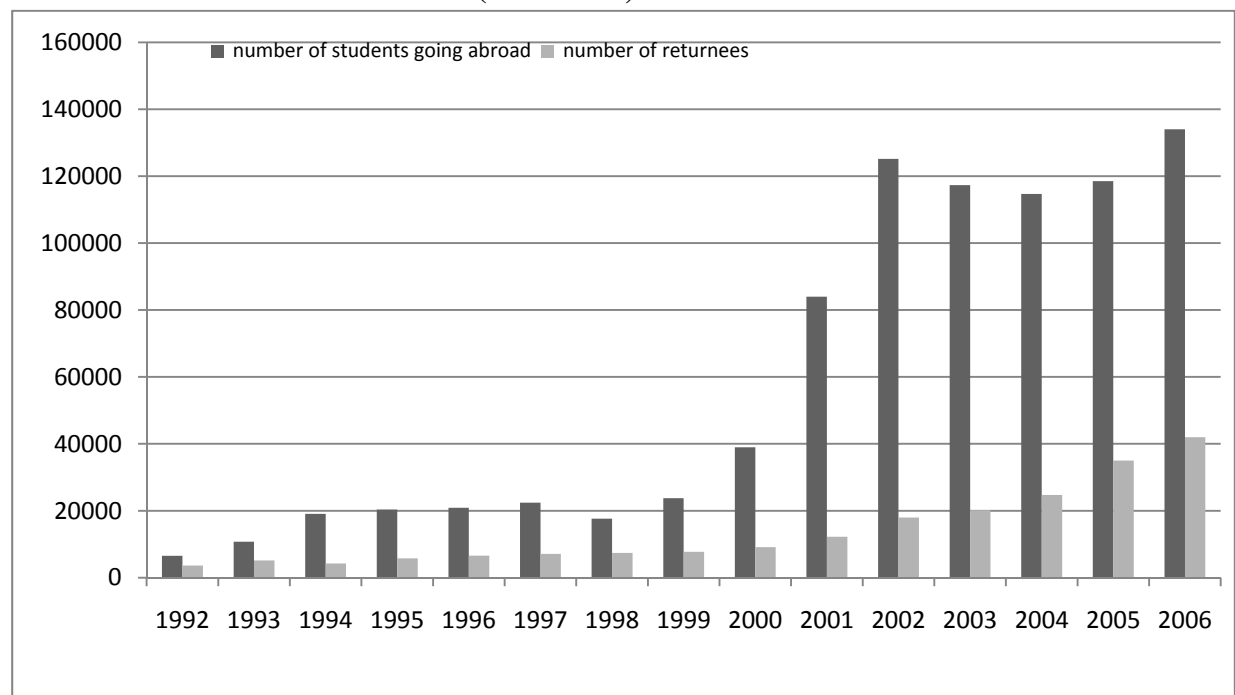


(Source: China Statistical Yearbook, 2009)

### ***China's brain drain in the developing phase***

Change started in 1992, which was the beginning of the third phase - the developing phase, wherein a significantly novel approach to study abroad was proposed and approved. The remarkable document - No.44 document - *Circular of Matters Relating to Students Studying Abroad* provided a wider platform for both students going abroad and students returning to China. With the economic development and relevant stable political environment, number of students going abroad and overseas returnees significantly increased. On the contrary to the first and second phase, self-financing students become the main group of students going abroad in this phase. Figure 2 shows a steady increase of number of students going abroad. Number of students going abroad rapidly increased after 2001 when China entered WTO. However, number of returnees remains stable and the proportion is still low in comparison with number of students going abroad.

**Figure 2 Annual distribution of number of students going abroad number of returnees (1986-2007)**



(Source: China Statistical Yearbook, 2009)

### 2.3 Pull factors for China's brain drain

As was presented in section 2.2, China has a great number of students going abroad while at the same time it has a rather small number of overseas returnees. As Tung (2008) predicted, this imbalance will be increased by the degree of open-door process. Although China had a big number of overseas students and small number of returnees, the statistical disparity could not represent the core problem of China's brain drain, for, a lot of students went abroad to have high school education or undergraduate education. Although they were regarded as the potential brain drain sources, the most serious brain drain was the highly skilled people, especially people who finished bachelor or master study in China and went abroad for advanced study (Xu, 2007). People who were proficient in ICT, biology engineering, computer science, foreign trade and other scientific fields, were the most needed human resources in both China

and the world. However, confronting the global war for talent, China seemed not to be sufficiently competitive (Xu, 2007). Thus this section will review factors that may have contributed to China's brain drain in general.

According to Zweig and Chen (1995), the main factor that contributed to China's brain drain in the late 1980s was the political instability and lack of political freedom. With the economic growth, stable political environment and overall reforms in 1992, economic factors become important. Xu (2007) concludes that four aspects can explain China's brain drain in recent years: poor technology and education resources, low salary, poor living and working conditions and unsystematic management.

#### ***Poor technology and education resources***

In this respect, lack of research funding and education resources is the main weakness. In terms of education resources, this is primarily evident in the lack of enough faculty members in academia (Zhang, 2004; Xiao, Wang, Zhang and Zhu, 2005; Xu, 2007). According to Xu (2007), in the United States, each doctoral supervisor may instruct two or three doctoral students while a Chinese doctoral supervisor has to supervise both doctoral students and master students. Every doctoral supervisor has to supervise more than 6 doctoral students which may lead to a low quality of learning outcome. Apart from the lack of academic staff, lack of funding perhaps is even more important. Xu (2007) mentions that the research funding is far behind the world average level. People who are doing research barely can get research assistances and operate advance facilities. Consequently, lack of funding would not only effect on the research outcome but also make people lack of confidence in the research institutes. Therefore, they may intend to go abroad for better research environment and search for a better professional career.

### ***Low salary***

Income disparity among developed countries and developing countries is the most crucial factor for talent outflow (Zhang, 2004; Xu, 2007). For example, in the United States, people who are working in ICT field are paid 60,000 USD to 80,000 USD per year, while in China, people working in the same field are paid only about 6,000 USD per year (Sun and Wang, 2006). Salary offered by domestic companies is less competitive than salary offered by foreign companies. Therefore, Chinese overseas talents could be more willing to work abroad while they have opportunities.

### ***Poor working and living conditions***

Most of returnees complain that they cannot apply their special skills, feel unsatisfied about the relationship with their colleagues, housing issues, children's education and natural environment (Sun and Wang, 2006). In terms of focusing on economic growth, China applies the way of “first pollution, then treatment”. Although China has shut the unpromising way already, it's a long-term process to rebuild the ecological environment. Thus some overseas talents choose not to return.

### ***Unsystematic management***

Zweig and Chen (1995) mention that China lacks the ability to manage talent. Mechanisms to select new employees are marked as lack of equality. For example, in the same companies, people who have higher capacity may devote more than people who have less capacity. This is due to people who have less capacity may have a better relationship with managers. The popular phenomenon is called “guanxi”<sup>9</sup> (Xu, 2007). Consequently, the phenomenon brings on inequality and injustice which push people out to pursuit equality/justice and get relevant revenue. Besides “guanxi”, the traditional seniority system may bring on the same consequence.

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<sup>9</sup> Guanxi is a Chinese word which refers to interpersonal relationship.

## **CHAPTER 3 LITERATURE REVIEW**

### **3.1 Literature on brain drain and brain circulation**

#### **3.1.1 Brain drain**

World Bank (2002) indicates, developing countries like China, India, Thailand and South Africa will meet great opportunities as well as encounter more challenges or potential threats under the globalization process. As a whole, globalization confirms a pattern of global economic integration (Held and McGrew, 2000). Nonetheless, globalization process to some extent enhances the economic disparity between developing countries and developed countries due to the negative aspect of human capital flows. The human capital flows bring on the emergence of “brain drain” for developing countries.

At first, the term brain drain referred to emigration to the United States of top scientists from countries like the United Kingdom, Canada, and the former Soviet Union (Rapoport, 2002). The number of migration flows increased during the 1990s, especially highly skilled people from Asia emigrated to the United States, the United Kingdom, Canada and Australia (Cervantes and Guellec, 2002). Now the term brain drain is generally used to indicate the international transfer of human capital from developing to developed countries (Rapoport, 2002). According to this, when brain drain gets started, it intends to have more positive effects than negative effects: the returned highly skilled labour force will bring back top knowledge and skills for home countries. However, he also argues that when the emigration scale (people from

developing countries emigrate to developed countries) is enlarged, brain drain depletes the accumulation of human capital and induces negative effects. In the Chinese context, brain drain is a serious trend and has a detrimental effect on China's development. As mentioned in Chapter 2, lots of Chinese highly skilled people have emigrated to developed countries with top knowledge and skills and this may have slowed down China's modernization progress. According to Zweig (2002:169), *"Academic and scientific exchanges and overseas education became the channel through which China's intellectuals and educational administrators could sojourn overseas, and the enormous demand for such opportunities has triggered a brain drain that rivaled most developing countries"*. Orleans (1988 cited in Zweig and Chen, 1995) contributes greatly to analyze the condition of Chinese students in the United States. He focuses on number of Chinese scholars/students in the United States and visa types, summarizes the problems faced by returnees and argues that the brain loss is not a big loss for China as China is overproducing scientists and researchers (Zweig and Chen, 1995). However, this argument has continuously been doubted because of the importance of human capital. Nonetheless, Orleans' view is based on 1990s situation. During the 21<sup>st</sup> century, most of scholars (Chen, 2002; Xu, 2007; Miao and Yang, 2008) argue that China has suffered enormous brain drain.

Scholars and policymakers pay great attention to the relationships between brain drain, migration and economic growth. For example, Wong and Yip (1999) examine the relationship between economic growth and brain drain wherein they find that brain drain adversely affects the human capital formation and tends to hurt the growth of the home country. Since education is regarded as a major determinant of long-term growth (Lucas, 1988 cited in Beine, Docquier and Rapoport, 2001), it is believed that the emigration of highly skilled people is detrimental for the country of emigration (Beine, Docquier and Rapoport, 2001). Todaro (1985 cited in Saxenian, 2005: 36) defines:



*“people who migrate legally from poor to richer lands are the very ones that Third World countries can least afford to lose: the highly educated and skilled. Since the great majority of these migrants move on a permanent basis, this perverse brain drain not only represents a loss of valuable human resources but could prove to be a serious constraint on the future economic progress of Third World nations.”*

Consequently, brain drain can have a debilitating effect on national governance structures, management capacities, productive sectors and tertiary institutions (World Bank, 2002). For example, in intermesh of national governance structures and management capacities, government may need talents devoted to their developments and become the reverse strengths. In terms of productive sectors, enterprise may need talents act as the driving force in order to improve companies' competitiveness in international world. In terms of tertiary institutions, HEIs may need talents help to reform the higher education systems. According to Sun, Ji and Wang (2005), 80% to 90% of total Chinese university presidents, vice presidents and faculty directors have overseas study experience. If those people left for other countries, it would be a great loss for Chinese higher education systems. The loss of talents in all above aspects will have a detrimental effect on China's sustainable development.

### **3.1.2 Brain circulation**

In the past, the emigration of highly-educated labour force to the developed countries was taken for granted to be one-way mobility. Recently, the mobility of highly skilled labour force is referred to as “brain circulation” (Johnson and Regets, 1998). Due to lack of reliable and internationally comparable statistical materials about the migration of the highly skilled, how to explicitly estimate the size of highly skilled migration is still a problem (Kelo and Wächter, 2004). For example, people who

emigrated return to their home country after certain years and bring the innovation and technology back. In this way, to a large extent they contribute to the economic growth in the home country and compensate the loss<sup>10</sup> to a certain degree. As a result, it is hard to define who benefited from the brain gain. Thus, Kelo and Wächter (2004) argue that instead of brain drain and brain gain, the term “brain circulation” is more appropriate to illustrate highly skilled flows across nations. However, brain circulation is not only a more appropriate term, but it also reveals a new trend of human capital flows.

Saxenian (2002) first coins this term to describe the relationship between population that emigrated and their motherlands. During the latter 20<sup>th</sup> century, highly skilled people emigrated to the United States, especially the Silicon Valley. Technologies and skills in this area grew rapidly. At the same time, as Saxenian perceives: *“it absorbed scientists and engineers voraciously and irrespective of national origin. Tens of thousands of immigrants from developing countries, who had initially come to the U.S. for graduate engineering education, accepted jobs in Silicon Valley rather than return to their home countries, where professional opportunities were limited, e.g., in 2000, more than 53% of Silicon Valley's scientists and engineers were foreign-born, wherein Indian and Chinese immigrants alone accounted for over one-quarter of the region's scientists and engineers, or approximately 20,000 Indian and 20,000 Chinese engineers”* (Saxenian, 2005:36). Brain circulation investigated by Saxenian is primarily based on the experience of the Silicon Valley–Hsinchu–Shanghai connection. According to OECD (2009), brain circulation can stimulate knowledge transfer to sending countries, for example through the return of skilled migrants to their home country after a period abroad, or a pattern of temporary and circular migration between home and abroad or home country and host country, both of which result in continuing knowledge exchange. To make the most of brain circulation, the home

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<sup>10</sup> According to Cheng (2003), loss refers to the loss of the accumulation of tuition fees and study fees for domestic HEIs, and loss of the education investment provided by government and public.

country needs to have sufficient absorptive capacity. This phenomenon of reversing brain drain is generally regarded as a “vital process” of globalization progress (Daugeliene and Marcinkeviciene, 2009).

### **3.1.3 Push and pull factors**

Lee (1966) constructs the push-pull theory and defines that factors either push people into migration or attract them to an area. Over time, the definition for push and pull factors become more accurate: a set of relatively consistent factors that both “push” people out of their homelands or “pull” them into the developed area (Zweig and Chen, 1995). In terms of human capital flow, push-pull theory has a significant effect on brain drain and brain gain. According to Zweig and Chen (1995), pull factors include professional opportunities, living and working conditions (higher salary and better logistic support), more opportunities for employment, the presence of friends and family, and political freedom; on the contrary, it can be inferred that push factors should include poor living and working condition (low salary and poor logistic support), few job opportunities, limited friends and family member around, and political fear.

Apart from push/pull factors, empirical studies classify factors that contribute to Chinese brain drain in two categories: political factors and economic factors. Both of them involve the individual motivations and perceptions, i.e., what individuals prefer and what are best for them. Political/economic factors and push/pull factors are interacted with each other. In order to have a better understanding of the relationship between the two sets of factors, the author constructed Table 3 and lists major components with respect to each factor.

**Table 3 The relationship between political/economic factors and push/pull factors**

|                          | <b>Push factors</b>   | <b>Pull factors</b>  |
|--------------------------|---|--|
| <b>Political factors</b> | Lack of freedom, instability and more traditional political culture;  | Freedom, stability and flexible political situation;   |
| <b>Economic factors</b>  | Poorer facilities to conduct research, lower salary, poorer intellectual atmosphere and lack of academic freedom; | Better facilities to conduct research, higher salary, better intellectual atmosphere, more academic freedom. |

Political factors, such as the extent of freedom and stability, and political culture (Zweig and Chen, 1995) will push people out of the country or pull them into the country. So to speak, the limited political rights, the complicated/unstable political situation and more traditional political culture can push people out of the home country, on the contrary, political liberty, flexible political situation and ways of evaluating people's performance and achievement attempt to pull people into the destination country. *"Third World is at the periphery of the world's educational and intellectual systems, while industrialized centre constitute the centre"* (Altbach, 1977 cited in Zweig and Chen, 1995: 11). This view perhaps can explain the Third World's brain drain to developed countries from an economic perspective. Economic factors thus could be identified as better/poorer facilities to conduct research, higher/lower salaries, a more /less intellectual atmosphere, and more/less academic freedom (Zweig and Chen, 1995). According to Table 3, the positive aspect of economic factors could pull people into the country while the negative aspect of that could push people out of the country. Nonetheless, in comparison with political factor, economic factor seems to be less effective in the first and second phases under the Chinese context (Zhang, 1992 cited in Zweig and Chen, 1995), as the politic instability is more influential than other factors. Also, El-Saati (Zweig and Chen, 1995) argues that people who go abroad have "an insufficient political consciousness," being more concerned with the self-interest. However, factors that affect people's choice to stay or return are quite

complicated. To pin reason on only self-interest is not rational. Besides, in Zweig and Chen's study, family ties, personal development and individuals' belief all have effect on brain drain.

#### **3.1.4 Pull-back factors**

On the basis of understanding the definition of push/pull factors, pull-back factor refers to factors which contribute to attract overseas talents back to the home countries. Pull-back factors are used to explain the phenomenon of brain circulation. According to Daugeliene and Marcinkeviciene (2009: 51): *"...it is important to comprehend what factors had an important impact for the emergence, manifestation and consolidation of brain circulation phenomenon..."* With respect to the pull-back factors, the present study will apply Tung's (2008) perception on defining factors that contribute to brain circulation. Tung (2008) indicates that brain circulation is stimulated by four factors: *globalization, no movement barriers, dual citizenship and boundaryless career*.

- *Globalization* hereby refers to *"the growing economic interdependence has meant that countries around the world are more inter-connected than at any other previous time in history"* (Tung, 2008: 229). Globalization used in this thesis has a broad sense: it refers to the degree of a country opening its gate and integrating with the outside world.
- *No movement barrier* refers to *"the reduction in immigration and emigration barriers to the movement of people had made it easier for people to relocate across countries"* (Tung, 2008: 229). Consequently, this factor is realized by the emergence of legislation framework which is required to support the reduction in migration barriers.
- *Dual citizenship* refers to *"countries that permit dual citizenship which facilitating*

*this mobility across nations*” (Tung, 2008: 229). Many countries have recognized dual citizenship (the United States, Canada, Australia etc.). Yet, China is one the exceptions. Thus, the present study will explore whether China has such a statement or replacement.

- *Boundaryless career* refers to the situation in which “*highly qualified people are increasingly willing to change jobs across international boundaries in search of more satisfying careers*” (Tung, 2008: 229). It is difficult to estimate to what extent people are likely to change jobs, as it depends on several points: salary, future development, job satisfaction etc. Those points are easier to be evaluated in comparison with other abstract factors, such as globalization. Therefore, in chapter 5, the present study will discuss those points from the aspects of career development and working condition.

### **3.1.5 Literature on policy analysis**

Policy theory has been identified as ‘the total of causal and other assumptions underlying a policy’ (Hoogerwerf 1990 cited in Gornitzka, 1999), including its normative framework, i.e. policy ideology. With respect to different fields of study, policy has been categorized as public policy, economic policy, education policy, health policy, environmental policy, energy policy and etc. Policy defined by Gornitzka (1999:14) is a ‘public statement of an objective and the kind of instruments that will be used to achieve it’ while Hambrick (1998) concludes that policy/policy study is the combination of policy analysis and programme evaluation. Policy study, a solution of preventing or confronting social problems, can be applied in all fields of political science and other social science (Nagel, 1980). Scholars like Wong and Yip (1999) pay much attention to how the government may use a more aggressive education policy to counter the detrimental effect of brain drain on the economy’s

growth rate. In response to this view, policy regarding “brains” could be ascribed to education policy area. Moreover, human capital flow as a natural phenomenon in knowledge-based society could be ascribed to economic policy as well.

Policy analysis can be divided into two major fields. Analysis of policy is analytical and descriptive when it attempts to explain policies and their developments. Analysis for policy is prescriptive when it is involved with formulating policies and proposals (Bührs and Bartlett, 1993). Therefore, the present study applies the analytical and descriptive aspect of policy analysis. This will be discussed in Chapter 5. With respect to policy content, policies hereby refer to overseas study policy and overseas returnees’ policy, more generally in education policy area. Overseas study policy refers to policy, rules and regulations in relation to students studying abroad while overseas returnees’ policy refers to policy, rules and regulations in relation to the temporarily and permanently returned overseas students. However, the present study focuses on policies concerning overseas returnees and analyzes the content of certain policy in Chapter 5.

## **3.2 Conceptual framework**

### **3.2.1 Terms definitions**

Concepts like human capital, highly skilled people, brain drain, brain gain, brain circulation, push/pull factor and pull-back factor will be frequently used in this thesis. Definitions for those concepts are as follows.

### ***Human capital***

Education and training are regarded as key investments with respect to human capital formation (Kelo and Wächter, 2004). Individuals and national economy both benefit from highly educated workforce. On the one hand, individuals would have higher income and better life expectancy; on the other hand, the rise of human capital would lead to a rise in the level of output of the economy (Lucas, 1988; Mankiw, Romer and Weil, 1992; OECD and World Bank, 2007). Therefore, human capital refers to people who are educated or trained in certain fields, or people who have certain professional skills which corresponds to the feature of knowledge economy (knowledge is the pillar that drive the economy growth). In terms of the present study, human capital is the term that frequently used in illustrating Chinese overseas talents.

### ***Highly skilled people***

The highly skilled people are also referred as “qualified”, “highly qualified personnel”, “human resources in science and technology”, “scientists and engineers”, or simply “brains” (Kelo and Wächter, 2004). According to Kelo and Wächter (2004), there are two aspects of defining the highly skilled personnel: on the one hand, individuals with a tertiary education are considered as highly skilled or highly qualified personnel; on the other hand, the highly skilled personnel are identified by the type of work - the professional-based work they carry out. To sum up, highly skilled labour force should fulfil either of the above measures, education-based definition or professional-based definition. Besides, Chinese official document has defined the so-called high-level highly skilled personnel. Although people have finished tertiary education in foreign HEIs, they cannot be ascribed to high-level highly skilled personnel without certain amount of foreign working experience and achievements.

### ***Brain drain and brain gain***

When highly skilled people emigrate to other countries with their knowledge and skill,



it results in a great loss for the home country and a great profit for the destination country. The destination country gains the “brain” whereas the home country suffers brain drain. Therefore, brain drain and brain gain are two opposite terms.

### ***Brain circulation***

Brain circulation refers to scientist, scholars, professionals, experts and etc. from developing countries, who have settled abroad, now begin to return home and contribute to the development of their national economy while maintaining social and professional ties to the immigration country. This new phenomenon reverses developing countries’ loss for brain drain and therefore both sides can benefit from it. The present study applies this term to illustrate the phenomenon of Chinese overseas students returning to China as highly skilled people.

### ***Push factor /pull factor***

As mentioned in previous section, both push/pull factors have substantial components. Such as working and living conditions, political freedom and academic atmosphere. Generally, push factors refer to factors that motivate highly skilled people to leave the developing countries while pull factors refer to factors that motivate highly skilled people to enter the developed countries. With respect to Chinese overseas students, push factors can be analyzed by domestic policies and economic conditions, while pull factors should be discussed by those issue concerning the countries that they emigrated to.

### ***Pull-back factors***

With respect to concepts of push/pull factors, pull-back factors could be inferred as factors that motivate highly-skilled people back to their home countries. According to Tung’s view (2008), pull-back factors can be related to *globalization, boundaryless career, no movement barrier* and *dual citizenship*.

### ***Policy analysis***

In terms of the present study, policy analysis can be described in two points. First, it refers to explain the development of overseas study policy and overseas talent returning policy, particularly the national policy and the Shanghai municipal policy. Second, it applies analytical tools applied in Gornitzka's study (1999) to discuss the policy content with respect to each policy.

### **3.2.2 Analytical tools**

#### ***Analysis of policy content***

According to Gornitzka (1999), the characteristics of policy content is composed of five elements: policy problem, policy objective, policy normative basis, policy instruments and policy linkage. More detailed explanations are as follows:

- *Policy problem*, with respect to different social-economic problems, policy is designed to solve a policy problem. Policies are more or less stable, but “*the problems they are attached to vary both across time and different national systems*” (Gornitzka, 1999:17). For example, overseas study policy, to some extent, can help the improvement of Chinese higher education systems. In another aspect, overseas study policy could maintain the degree of China integrating with the world;
- *Policy objective* should indicate the intended outcome of a policy. According to Gornitzka (1999:17), “*Policies can vary according to whether policies and programmes are directed at changing, adjusting or maintaining behavior of target organisations or groups.*” They can vary the degree to which they are explicit or implicit. In relation to this aspect, the outcome would be influenced by the aim of a policy. For instance, “overseas talent returning policy aims at helping returnees to establish their enterprises in home country”, is more

explicit than “...aims at encouraging overseas talent return.” The characteristics of policies are related to the type of change that a policy aims at (Gornitzka, 1999:18). Namely, the outcome depends on whether the policy objective is explicit or not. A more explicit policy objective could have a better achievement. Moreover, the outcome depends on the successful implementation of policy instruments as well. An efficient policy instrument would be more helpful to overcome difficulties and achieve the goal.

- *Policy normative basis* refers to values and beliefs that policies and programmes are based on. It can be read out from both policy problem and policy objective. “*Analysis of policy discourses and the language of policy could help to understand the normative frameworks, especially when policy languages and discourses are changing*” (Gornitzka, 1999:19). For example, the overseas returnees’ policy is based on the perception of the value of human capital; reform and open-up policy concentrates on the perception of economic growth and internationalization; higher education expansion policy is based on the cost-sharing concept;
- *policy instruments* are mechanisms that government uses to influence the society. Those tools, according to Hood (1983) could be classified as: nodality (information), treasure (money), authority (legal official power) and organisation. “*Nodality refers to the central position of government in societal communications and its ability to ‘send out’ information; authority refers to government’s ability to issue binding laws; treasure refers to government control of capital.; organisation refers to the public bureaucracy and its implementation and monitoring capacity*” (Hood, 1983 cited in Gornitzka, 1999:20). However, as Hood (cited in Gornitzka, 1999) pointed out, there is no pure policy instrument. For instance, it is difficult to explicitly distinguish funding and regulations, for, ways of applying for funding could be attached to regulations and vice versa. Therefore, government website, mass media and

tools applied to transfer information could be regarded as nodality; salary, allowance, R&D funding could be regarded as treasure; regulations could be regarded as authority and central, local administration and other government agencies could be regarded as organization. Besides, programmes could be regarded as a combination of all the above policy instruments.

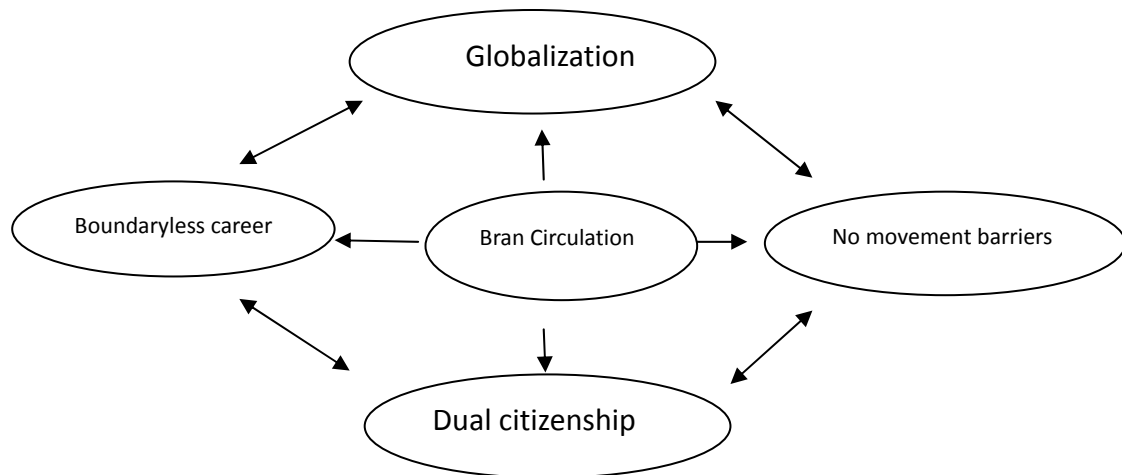
- *Policy linkage* refers to the degree of “*coherence or consistency over time and over fields, measures the degree of policy content that is breaking with or continuing the content of other government policies*” (Gornitzka, 1999:21). Horizontally, a given policy may have effect on other policies which is important for its improvement. Such as the relationship between returnees’ policy and education policy, and the relationship between education policy and economic policy and etc. Vertically, the interconnection of a given policy at difference levels (such as national level and local level) addresses coherence which is important for policy implementation.

### ***Policy as the impetus***

On the basis of policy analysis at different level, it is easier to find out whether policy is the main impetus that has effect on pull-back factors for brain circulation. As mentioned in preceding sections, Tung (2008) indicates that brain circulation is mainly stimulated by four factors: *globalization, no movement barriers, dual citizenship* and *boundaryless careers*. It seems that *globalization, no movement barriers, dual citizenship* and *boundaryless careers* are relevant to the economic status as well as political circumstance. Based on Tung’s view, Daugeliene and Marcinkeviciene (2009) constructed Figure 3, which can clearly indicate the relationship between the four factors and brain circulation. Tung’s model to most extent attempts to estimate the requirements that permit brain circulation, which can be a complement to explore the political factor. According to Figure 3, the four factors all interact with each other while brain circulation requires incentives of the four

factors. In order to answer the research question-whether policy is the main impetus that contributes to brain circulation, the present study will use findings and conclusions from policy analysis in the two levels to evaluate Tung's model.

**Figure 3 The model of factors which stimulate brain circulation**



(Source: Daugeliene and Marcinkeviciene, 2009)



## **CHAPTER 4 DATA PRESENTATION**

### **4.1 Overview of Shanghai's brain circulation**

As mentioned in Chapter 2, China has suffered enormous brain drain since policies concerning overseas study and return have been promulgated. On the contrary to the whole picture, brain circulation, regarded as a vital process for all countries, does appear in Shanghai. Thus in order to find out the similarities and differences between the national policy and Shanghai municipal policy, Chapter 4 will interpret policies concerning returnees promulgated at the both levels. However, excluding policy itself, projects and funding which are initiated by policies and regarded as part of policy instruments, may have effect on brain circulation as well. In order to provide an ample discussion basis for Chapter 5, Chapter 4 attempts to present a comprehensive picture regarding policies, policy content and policy instrument.

As mentioned in Chapter 1, there is limitation in the statistical data concerning people who returned to Shanghai. There is no data to show the annual number of people returning to Shanghai between 1978 and 2001, what kind of degree returnees hold and their current situation (e.g. jobs, house, and health insurance), etc. According to Table 4, Shanghai's returnees in the 1978 to 2001 period, are almost middle-aged and above, generally have strong academic background in science and have studied in developed countries. Consequently, it may be inferred that returnees could hold foreign nationality (if they had stayed abroad for more than 10 years, it would be easier for them to apply for permanent residence permit), have stable social-economic status (if they wanted to legally stay abroad, they should have a certain job which could help they building a stable connection with the society and themselves) and specialize in

certain scientific fields.

**Table 4 Features of Shanghai total returnees (1978-2001)**

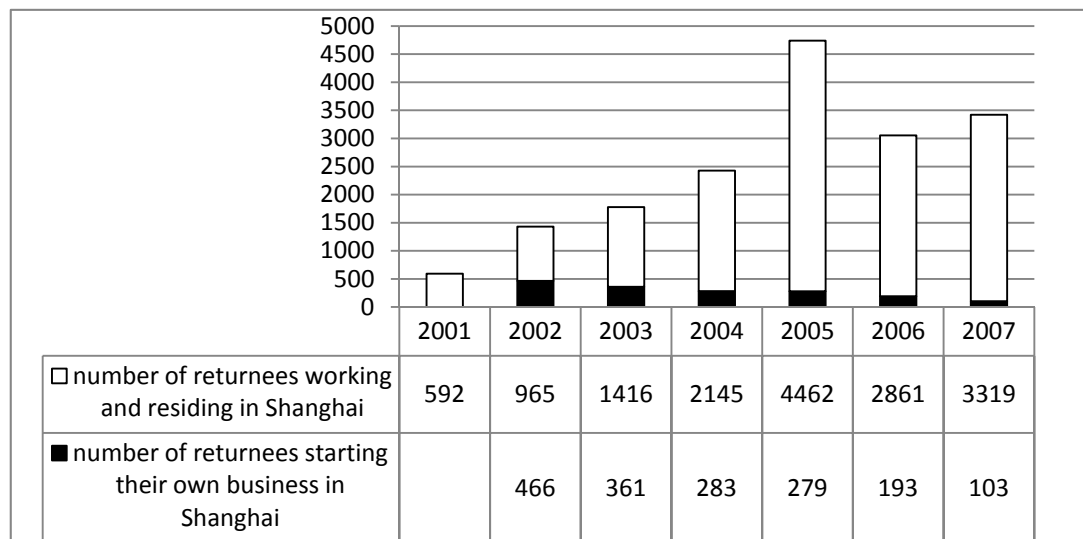
| People return to Shanghai | Features   |
|---------------------------|--|
| Number                    | 25,000 (1/6 of Chinese total returnees)  |
| Age                       | 50-70  |
| Major                     | information technology, biology and medicine, international finance, computer science and automobile manufacturing, etc. |
| Place of study            | 70% U.S, UK, Japan, Germany and other Western countries; 30% Asia, Africa and etc.                                       |

(Source: Shanghai Youth Record, 2002)

There are no systematic data in Shanghai showing status quo of returnees until 2001. Number of returnees constantly increases from 2001 to 2007. For instance, total number of returnees in 2001 was about 28,000 and it increased to 75,000 in 2007 (Shanghai Yearbook 2001-2007). However, these numbers are accumulation of all types of returnees. It is difficult to distinguish what kind of talents returned (bachelor, master, doctor or postdoctoral; voluntarily return: initiated by certain policies or working conditions, or forced to return because of some reasons: visa expired, fail to find a job and etc). Therefore, to draw a more explicit picture, the present study employs the data given by Shanghai municipal government to make Figure 4. Figure 4 only includes numbers of highly skilled people (people who brought in by Shanghai government) and shows the distribution of types of returnees. It distinguishes people who are working and residing in Shanghai from people who are setting up their own business in Shanghai. This difference is categorized by the Shanghai municipal government, as local government has attached great importance to the venture capital invested in and revenue brought by those returnees (Shanghai Yearbook, 2002).



**Figure 4 Annual distribution of number of returnees working and residing and number of returnees starting their own business in Shanghai (2001-2007)**



(Source: Shanghai Yearbook, 2001-2007, arranged by the author)

According to Figure 4, the number of returnees working or residing in Shanghai has significantly increased from 2001 to 2007 while the number of returnees starting their own business in Shanghai has gradually decreased during the same period (no data available in 2001). On the one hand, why does number of returnees working and residing increase, especially in 2005? Are there more policy initiatives or more activities carried out in the specific year? On the other hand, why does number of returnees starting own business decrease? What kind of problems do they confront and do policies may have effect on their falling back? The author will have a detail discussion in Chapter 5.

## 4.2 Policy reform

### 4.2.1 The national policy

As mentioned in Chapter 2, the developing phase started in 1992. 1992's policy aimed at attracting back people who stay abroad due to political reasons (RCSPY, 2007: 369). On the other hand, it provided a general basis for operating issues concerning returnees. Specifically, following developments (policies, regulations and programmes proposed after 1992) were all based on the guidelines - "support people study abroad, encourage people who have completed studies to return home, overseas talents can come and go freely". It simplified the students/scholars' visa formalities for multiple entries and exists, adopted "mutual-decision" for returnees and set up the service centre for returnees. However, 1992's policy was too general and vague. To most extent, it eased the regulations for returnees to come back, yet, with a strong focus on managing students going abroad, no substantial regulations were put into effect for returnees. With the change of political environment (more stable) and economic environment (rapid improvement), returnees' policy was not only focused on attracting overseas talents in a general way but also on attracting certain types of overseas talents. Consequently, a new policy which was mentioned in Chapter 2- *Provisions on Encouraging High-level Overseas Highly Skilled People Return to the Country and Establishing Their Own Business* was proposed by MOP and approved by CCP/State Council in 2000. The *Provisions* was another remarkable policy reform which was regarded as a complement to 1992's policy and a new stage to highly skilled people (Chen, 2009).

The *Provisions* addresses the importance of attracting high-level highly skilled people as they were the main component of China's human resources (RCSPY, 2007: 396).

According to RCSPY (2007), the *Provisions* had 6 key points:

- 1) High-level highly skilled personnel refers to people graduating from foreign HEIs and having overseas working experience in certain fields: financing, management, education area etc. ;
- 2) Certain industries (bank, insurance company, stock exchange and other state-owned large enterprises) had the autonomy to attract talents in their own ways (no funding from government), talents brought in by HEIs and R&D institutes should be approved in accordance with relevant regulations and funded by government;
- 3) High-level highly skilled personnel could keep the long-term or permanent residence identity with the host countries (such as green card);
- 4) For high-level highly skilled people, wage should be 2 to 3 times higher than the wage level according to their current professional ranks and titles; apart from wage, for those who work in HEIs and R&D institutes, they can have monthly allowance which should be 5 to 10 times than their current wages. The purpose of the monthly allowance is not defined in the policy document. Therefore, the allowance could be a kind of compensation, which may attempt to eliminate the salary disparity between China and developed countries.
- 5) They should have the right to have social welfare (housing subsidy, medical treatment and insurance) as other employees.
- 6) Employers should help their spouses find jobs as well as arrange schools for their children.

In 2001, *Provisions on Encouraging High-level Overseas Talent to Serve the Country in Various Forms* was approved. The *Provisions* classified 7 job types that applied to high-level highly skilled returnees to serve the country, which attempted to establish a diversified job market and provide flexible methods applied by relevant working units. The *Provisions* complemented the national policy and intended to eliminate barriers which restricted overseas students coming back. With respect to the 7 job types, for

instance, HEIs and R&D institutes employ overseas talents to be the part-time counsellor; talents could utilize their technologies, facilities and funding to cooperate with domestic units; talents could join the domestic R&D programme as well as introduce foreign programme to domestic units and establish business in various fields and etc.

#### **4.2.2 The municipal policy**

Shanghai municipal government promulgated *Regulations Concerning Overseas Returned Students Starting Business in Shanghai* in 1992 and made the latest revision in 2005. The *Regulations* initially followed the national policy process. With respect to the revision, instead of copying from national policy, it had differences according to Shanghai's features. Firstly, the *Regulations* classified the features of returnees in two categories: 1) returnees referred to people who graduate from foreign HEIs<sup>11</sup> and who hold bachelor degree or above; 2) people who graduate from domestic HEIs, who hold the bachelor degree or above and who have completed one-year further study in foreign HEIs or research institutes (RCSPY, 2007). Besides, the *Regulations* indicated that Shanghai would strategically bring in urgently needed high-level highly skilled people. Thus people who fulfil any of the following requirements would be defined as high-level highly skilled people: “*scholars/experts shall have a good reputation in international academic world; scholars/experts shall work in overseas high-qualified HIEs, research institutes, world-famous enterprises, cross-national enterprises, financing organisations, law offices, and foreign governmental/intergovernmental organisations and non-governmental agencies; scholars/experts shall contribute greatly to certain fields and publish influential academic papers in those fields; scholars/experts/engineers shall direct major research projects or engineering*

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<sup>11</sup> Foreign HEIs hereby include also HEIs in Hongkong, Macao and Taiwan.

*projects; scholars/ engineers shall own major inventions and patents, etc* (RCSPY, 2007: 527).” Meanwhile, it provided more than 12 job types for returnees working in Shanghai. Excluding types mentioned in national policy, returnees could be hired as a civil servant, a corporate executive of stated-owned company, a senior manager and a technical adviser of a major project; returnees could give lectures as an academic visitor, establish education, medical care and service (law, accounting and consultant) institutions; they can also be appointed to work abroad by Shanghai working units. Secondly, it stated that relevant government departments (Bureau of Personnel, Bureau of Industry and Commerce, Finance Bureau and Local Taxation Bureau etc.) should provide funding and relevant service for returnees establishing business in Shanghai, especially in pioneering parks. Thirdly, it concluded 21 substantial regulations concerning returnees’ welfare, such as Shanghai Resident Permit B<sup>12</sup>, special fund, duty-free allowance.

### **4.3 Main projects and organizations**

In response to the policies concerning overseas study and return, government proposed and set up relevant programmes to attract overseas talents. The major programmes were “Spring Sunshine Plan” and *Circular of Establishing Pioneering Park for Returnees (Pilot Project)*, which were concluded as project-oriented approach by Xiang (2005). Apart from the projects proposed at the national level, Shanghai government set “10,000 Overseas Talents Converging Programme” which aims to attracting more high-level returnees. With respect to returnees, relevant service sectors play a role as information platform that may have influence on returnees’ choice. Programmes are proposed to support returnees’ policy while service sectors help government to transfer information and manage certain

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<sup>12</sup> Shanghai Resident Permit B is applicable to people who hold foreign nationality and work and reside in Shanghai. It has several preferable regulations: such as reduction of entry requirements for B holder’s children.

programmes. To a certain extent, programmes and service sectors could be considered as policy instruments when implementing policies. The present study will discuss them in detail in Chapter 5.

### ***Spring Sunshine Plan***

In 1996, MOE set up the “Spring Sunshine Plan”. In 2000, the implementation of the plan was expanded to all provinces. This plan aimed at improving the economic growth, education development and technology innovation. Scholars/professionals<sup>13</sup> who used to work in foreign HEIs and returned to China in the sabbatical period, signed a temporary contract (6-12 months) with domestic HEIs and research institutes, delivered lectures or took part in research programmes in those HEIs and research institutes. Scholars/professionals were fully financed by MOE (RCSPY, 2007). From 1996 to 2006, more than 140 overseas students’ communities and 12,000 scholars/professionals were subsidized by the plan. Domestic HEIs and research institutes greatly benefited from their knowledge and experience (CSCSE, 2007).

### ***Pioneering park for returnees***

In 2000, MOE, Ministry of Science and Technology (MST), and Ministry of Personnel (MOP) proposed and approved the *Circular of Establishing Park for Returnees (Pilot Project)*. The *Circular* focused on establishing hi-tech parks for returnees, in order to improve national innovation ability and economic growth. 21 pioneering parks were recognized as the pilot-project units (being examples for other pioneering parks) by MST, MOE, MOP and Bureau of Foreign Experts Affairs (RCSPY, 2007). According to statistics presented by MST (RCSPY, 2007), there were more than 110 pioneering parks established by the end of 2006 and the number of pioneering parks constantly increased. At the end of 2006, the 21 pilot-project units employed more than 76,000 people, among them, 4,217 were overseas returnees;

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<sup>13</sup> Scholars/ professionals refers to people who specialize in information science, life science, materials science, resources and environmental science, agriculture, energy, law, economy and management.

3,857 incubated enterprises and 2,399 graduated enterprises made about 5.2 billion USD revenue. In Shanghai, approximately 40% companies which were registered by returnees and were located in Shanghai's 10 pioneering parks. For the sake of supporting the establishment of pioneering parks and carrying out specific works (registration, funding, construction of enterprises, import facilities and etc.), policies and regulations were issued to support the development of pioneering parks, especially various foundations and funding programmes were founded. For example, *Venture Capital Fund for Overseas Students*; *Special Funds of Housing Rental Compensation for High-quality Overseas Students*; *Special funds of High-tech Industrial Entrepreneur for Overseas Students*; *Technology Development Foundation*; *Funding for Information-base Development* and *Funding for Intellectual Property Rights* (RCSPY,2007).

### ***10,000 Overseas Talents Converging Programme***

In 2001, Shanghai first proposed the strategic programme of “Constructing the International Highlands of Talent”. On 31 August, 2003, Shanghai municipal government started up the “10,000 Overseas Talents Converging Programme”. This programme attempted to use 3 years to recruit more than 10,000 overseas highly skilled people to Shanghai. However, the first round of the programme was successfully completed already in November 2005, which was better than government expected (Shanghai Yearbook, 2006). On account of the start-up of the programme, 10,203 people returned or started to work in Shanghai in 2005 (Shanghai Yearbook, 2006). In order to extend the scale of the programme, Shanghai government had already set up overseas liaison offices in Europe, North America and Australia. The second round of the programme started in December, 2005. According to Shanghai Yearbook (2007), 9,492 overseas talents were recruited by the end of 2006. The features of returnees in this period are different from that presented in Table 4. Hu (2004) concluded that the features of the returnees talents in the first round were: they

were familiar with international rules and conventions; specialized in management and other professional fields; they were relatively young (26-40) in comparison with people returned before 2001; they mainly came from UK, U.S., Canada, Australia, Japan and France; they held master degree and above (70.7% with master degree and 23.8% with doctoral degree) and most of them (71%) had overseas working or training experience.

### ***Overseas Community***

Western Returned Scholars Association Chinese Overseas-Educated Scholars Association (WRSA-COSA) was a volunteering non-government organization which was founded in 1913 in Beijing. This organization was managed by its own council. It aimed at uniting overseas students, applying foreign advanced science and technologies to enhance the national reunification and rejuvenation, reflecting the opinions and suggestions of overseas students. Until today, the organization has 14 branches. Those branches are categorized by countries, i.e., the United States Branch, the Russian Branch, and the United Kingdom Branch and so on. The organization has established the working connection with thousands of other overseas communities. It also carried out specific works for “10,000 Overseas Talents Converging Programme” (WRSA-COSA, 2009). The organization published magazines and posted information concerning domestic situation and job demands on its website. Besides, the alumni record could be founded as well. Nowadays, it has 16 member units which are distributed by geographic locations (WRSA-COSA, 2009). SORSA is one of its member units. On account of the longest history, SORSA perhaps is the biggest and most prestigious overseas community.

The history of Shanghai Overseas Returned Scholars Association (SORSA) could be traced back to 1905 and named China-Global Student Union. It become the member unit of WRSA-COSA and renamed in 1913 on the initiative of early overseas returned



scholars with their expertise in a wide range of disciplines and professions. Since the resumption of its activities on September 3, 1984, the membership of SORSA increased to more than 7,000 members, including 360 overseas members. Among them, up to 64 were members of the Chinese Academy of Sciences, and 24 were the Chinese Academy of Engineering (SORSA, 2008). To carry on its activities for effective functioning and cohesion, more than 38 chapters were set up (SORSA, 2008). The organization has a systematic operational structure and explicit distribution of works. The non-government organization will reflect overseas talents' opinions to government, which may have positive influence on certain policies and programmes. It not only constructs the linkage between overseas students (alumni record), but also attracts government's attention (annual conference is supported by government).

#### **4.4 R&D expenditures**

Since open-up and reform policy has been promulgated in 1978, China's economy has dramatically changed. However, the change of economic environment to some extent could reflect the achievement or the weakness of a given policy. This is because that the implementation of most policies needs financial support. As mentioned in Chapter 3, there are five elements utilized to analyze policy content. Considering the money as the driving mechanism, government's capacity of managing money will reflect and decide the strength of achieving a given policy. With respect to returnees, those who invited by government will take part in certain programmes and tasks, and those who choose to start their own business will mainly devote to the hi-tech fields. Thus the scale of funding on S&T activities may influence their choice of stay or return.

##### ***At the national level***

According to China Statistical Yearbook (2001; 2009), the investment in scientific and

technological (S&T) activities<sup>14</sup> consistently increased from 2001 to 2007. Funds are raised by various channels: government funds, enterprise funds, unit funds, financial institute loans, foreign enterprise investments and other funds (China Statistical Yearbook, 2001; 2009). However, Table 5 indicates the first three ways of getting funds because of no data shown for other two in yearbooks. This will not affect data analysis as the three are the main channels of accumulating funding. Moreover, the total expenditures on S&T activities can be classified into several categories (China Science and Technology Statistics, 2001). For example, with respect to the usage of S&T funding, the total expenditures include labour expenses, fixed assets expenses, managerial fees, operational fees and etc; with respect to the executive departments, it includes expenditures that used by state-owned R&D institutes, HEIs and private enterprises. Besides, it can be classified by regions (Beijing, Shanghai, Guangzhou and etc.) as well. Nonetheless, the official documents have no continual data to indicate each above index from 2001 to 2007. Therefore, the present study only highlights expenditures on R&D which is classified by types - fundamental research, applied research and experimental research), as it is the more complete and precise than other indexes. Discussion in Chapter 5 will be based on the corresponding data. As is presented in Table 5, funding invested by enterprises has the biggest share. Along with the increasing funding through those years, the expenditure for S&T activities considerably increased as well, while in R&D expenses, experimental research to most extent utilizes the biggest proportion of funding. However, the proportion of R&D expenditures to China's GDP is quite small.

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<sup>14</sup> S&T activities refer to knowledge production, development, transformation and application. Knowledge especially relate to fields of natural science, agriculture, medication, engineering and social science. Activities are categorized as R&D, application for R&D achievements and other relative services. Table 5 highlights R&D sector.

**Table 5 Statistics on S&T funding at the national level (2001-2007)**

|  | 2001           | 2002           | 2003           | 2004           | 2005           | 2006           | 2007           |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>Total funding for S&amp;T activities<br/>(100 million CNY<sup>15</sup>)</b> | <b>2,589.4</b> | <b>2,938.0</b> | <b>3,459.1</b> | <b>4,328.3</b> | <b>5,250.8</b> | <b>6,196.7</b> | <b>7,695.2</b> |
| - Government funds   | 656.4          | 776.2          | 839.3          | 985.5          | 1,213.1        | 1,367.8        | 1,703.6        |
| - Enterprises funds  | 1,458.4        | 1,676.7        | 2053.5         | 2,771.2        | 3,440.3        | 4,106.9        | 5,189.5        |
| - Finance institution loans  | 190.8          | 201.9          | 259.3          | 265.0          | 276.8          | 374.3          | 384.3          |
| <b>Total expenditures on S&amp;T<br/>activities (100 million CNY)</b>          | <b>2,312.5</b> | <b>2,671.5</b> | <b>3,121.6</b> | <b>4,004.4</b> | <b>4,836.2</b> | <b>5,757.3</b> | <b>7,098.9</b> |
| <b>-R&amp;D expenses</b>   | <b>1,042.5</b> | <b>1,287.6</b> | <b>1,539.6</b> | <b>1,966.3</b> | <b>2,450.0</b> | <b>3,003.1</b> | <b>3,710.2</b> |
| -- Fundamental research  | 52.2           | 73.8           | 87.7           | 117.2          | 131.2          | 155.8          | 174.5          |
| --Applied research   | 175.9          | 246.7          | 311.4          | 400.5          | 433.5          | 489.0          | 492.9          |
| -- Experimental research   | 814.3          | 967.2          | 1140.5         | 1,448.7        | 1,885.3        | 2,358.4        | 3,042.8        |
| <b>Proportion of R&amp;D expenses to<br/>GDP (%)</b>                           | <b>0.95</b>    | <b>1.07</b>    | <b>1.13</b>    | <b>1.23</b>    | <b>1.33</b>    | <b>1.42</b>    | <b>1.49</b>    |

(Source: China Statistical Yearbook, 2003, 2009)

#### *At the local level (Shanghai)*

R&D expenditures consistently increased from 2001 to 2007. As is presented in Table 6, R&D expenditures in 2007 is 3 times more than that in 2001. With a slightly increase, the proportion of R&D expenditures to Shanghai's GDP seems have no significant change. However, the proportion of R&D expenditures to the local fiscal budget rapidly increased from 2001 to 2007. As was presented in Chapter 1, Shanghai has a high social-economic status which is regarded as the most developed city in China. Although the proportion of R&D expenditures in Shanghai to the total national R&D expenditures has remained stable from 2002 to 2007 (no data available in 2001), it is still one of the leading cities which contribute a lot to the scientific and

14 The exchange rate is changing at any moment. The recent exchange rate for CNY to USD is from 0.681 to 0.685. China Bank, 27 May, 2010.

technological innovations among China.

**Table 6 Statistics on R&D funding in Shanghai (2001-2007)**

|   | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|------|------|------|------|------|------|------|
| <b>R&amp;D expenditures<br/>(100 million CNY)</b>   | 13   | 15   | 19   | 25   | 31.4 | 38.1 | 45.2 |
| <b>Expenditures in R&amp;D as percentage<br/>of Shanghai's GDP (%)</b>                                | 1.69 | 1.78 | 1.93 | 2.11 | 2.33 | 2.50 | 2.52 |
| <b>Expenditures in R&amp;D as percentage<br/>of S&amp;T activities in local fiscal<br/>budget (%)</b> | 1.7  | 1.7  | 1.8  | 2.8  | 4.8  | 5.2  | 4.85 |
| <b>Expenditures in R&amp;D as percentage<br/>of total national expenditures in<br/>R&amp;D (%)</b>    | --   | 8.8  | 8.4  | 9.2  | 9    | 8.7  | 8.4  |

(Source: Shanghai Statistical Yearbook, 2009)

Generally, the R&D funding is quite limited, both at the national and local level. However, there is an incremental at the local level. The increasing proportion of expenditures on R&D to local fiscal budget may have the chance to reverse the whole picture in the coming years. On the other side, it seems that central government has no intentions to expand the proportion of investment in R&D to GDP. As mentioned in Chapter 2, Xu (2007) indicated that China's R&D funding was lower than the world level, especially in comparison with developed countries. Consequently, lack of R&D funding is a big weakness for attracting highly skilled people as well as a restraint for China's overall development. Thus, in Chapter 5, the present study will discuss whether funding will drive the progress of brain circulation and whether government is capable of managing the funding.

## CHAPTER 5 POLICY ANALYSIS

### 5.1 Analysis of the national policy

According to Gornitzka (1999), problems addressed by a given policy are varied across time and national systems. Therefore, in terms of policies concerning overseas study and return, problems addressed in 2001 may be different from that addressed in 1992, as policies will be revised and adjusted according to timing and changing situation. As mentioned in Chapter 2, in terms of policies concerning returnees, 1992's national policy (*Circular of Matters Relating to Students Studying Abroad*) intended to solve problems left by Tiananmen Incident, and address several issues (RCSPY, 2007): the limited number of returnees, the contradictions between government-/unit-sponsored returnees and their original working units, the complicated visa formalities, the enormous loss of highly skilled personnel etc. Based on the fundamental status of 1992's policy - a general principle, 2001's policy (*Provisions on Encouraging Overseas High-level Highly Skilled People Return to the Country and Establishing Their Own Business and Provisions on Encouraging High-level Overseas Talent to Serve the Country in Various Forms*) is an innovation and a complement to 1992's policy which determines a series of regulations for highly skilled people in specific fields. The policy reform in the developing phase shifts the focus from managing and controlling number of students going abroad to providing jobs and relevant services for returnees, while the 2001's policy emphasizes the importance of high-level highly skilled labour force. Thus, the returnees' policy becomes more explicit and well targeted. Nonetheless, the official documents have no explicit statement which determines problems of returnees' policy in the third phase. Therefore, the following problems are perceived and identified from the Chapter -

*Theoretical Exploration of Proposing Policies Concerning Returnees* (RCSPY, 2007) and important speeches given by Deng Xiaoping (1978 cited in RCSPY, 2007: 3) and Jiang Zemin (1989; 1990; 1999 cited in RCSPY, 2007: 4-7). Those sources emphasize the limited number of returnees is a crucial problem in relation to issues concerning returnees. However, scholars (Zhang, 2002; Xu, 2007) argue that in order to attract more returnees, it is meaningful to understand what has caused the problem. Chapter 2 presented “causes” which were relevant to push factors. To most extent it explained why number of returnees was limited. Therefore, policy should be made to redress problems that are related to those factors. However, not all factors are concrete enough to be prescribed by policy, such as political environment, family ties and academic atmosphere etc. Therefore, the following discussion is based on whether returnees can find a satisfied job and whether returnees can gain the satisfactory revenue, which is more substantial and concrete.

### **5.1.1 Problems that the policy should address**

#### ***The notion of labour market***

Hunting talents is always a hot competition in domestic area and abroad. China’s labour market is marked with large-scale of low-quality (un-educated or less educated) labour force (Shanghai Personnel Bureau, 2002). The competition for attracting adequate high-quality people (highly skilled personnel) is quite fierce. By general consensus, people holding overseas degrees are regarded to be more qualified and competitive than people holding domestic degrees (this consensus is very much influenced by the enrolment expansion policy - the difficulty to maintain the quality of higher education). Therefore, the problem of the labour market is twofold. First, it is lack of highly skilled personnel which could be identified from 1992’s policy. Second, it is lack of “qualified” personnel which could be identified from 2001’s

policy. With respect to the second focus, overseas degrees are no longer as valuable as before with the increasing number of students going abroad. As time goes on, the subjects they studied may not be adaptable to the needs of labour market, as “studying abroad” becomes quite a popular trend (less restrictive requirements and various channels to go abroad). On the one hand, the returned students have difficulties to find a satisfied job; on the other hand, the labour market has difficulties to employ a suitable talent. For example, if there were lots of people studying business management, after graduation they wanted to find a job in China, but, what if Chinese labour market was saturated and could not afford to absorb all the talents? And, what kind of talents could fulfil the demand of labour market? Questions raised here, may reflect a limited aspect of government concerns. Therefore, a possible solution for the above questions depends on the government. If government could steer or guide the trends in choosing subjects for people studying abroad in a given period (subjects should have practicability rather than popularity), it would be possible to readjust the structure of labour market and reallocate and make use of human resources.

### ***The notion of welfare***

From the various sources of empirical studies (Zweig and Chen, 2002; Xu, 2007), the insufficiency of material prerequisites and political instability are mostly identified as key push factors. With respect to the latter, ever since the Tiananmen Incident happened, government devoted a lot to change the political, social and economic situation, as they realized that overseas talents were important resources. However, they ignored or seldom considered substantial regulations concerning returnees’ welfare. Instead, they demanded overseas talents to return without any formal regulations to ensure their living or working conditions. The government demand is challenged by talents’ motivation and their expectation towards living and working (working and living conditions, academic atmosphere and political freedom, etc). However, to most extent, the high education investment does effect. As mentioned in

previous chapters, self-financing students are the main group of students going abroad. Government- and unit-sponsored students can get funding or scholarship while self-financing students have to find out their own ways to pay tuition fees. It is possible for some of them to get financial support from international foundations or foreign government sectors. However, most of them have a high education investment. Therefore, they may expect that educational revenue could be parallel to its investment. They could have a better choice when they are abroad. In terms of domestic situation, the salary standard is low and the working and living conditions can not compare with those provided by foreign countries. Overseas students may prefer staying abroad to returning in consequence of no substantial support. Nonetheless, welfare issues could be possibly solved and stated in policy documents. Policy thus could help to improve returnees' working and living conditions.

### **5.1.2 Policy objectives**

As Gornitzka (1999) indicated, a well-designed policy with a more explicit policy objective could achieve a better outcome. With respect to the national overseas returnees' policy, the policy objectives could be identified from the Chapter - *Theoretical Exploration of Proposing Policies Concerning Returnees* (RCSPY, 2007):

- 1) Use overseas talents' knowledge and skills, and their capital investment to contribute to China's construction and modernization;
- 2) Establish a high-quality talented workforce by attracting and bringing in more high-level highly skilled people in specific fields;
- 3) Realize the employment mechanism reform, in order to efficiently manage and allocate talented workforce.



### ***The advantage of using returnees' skills and knowledge***

The positive effect on using returnees' skills and knowledge could be mainly summarized as they are the most important resources to help China's integration with the world, economy improvement and readjustment of the structure of the labour market. With respect to the features of returnees, on the one hand, they are familiar with international conventions and regulations in certain fields; on the other hand, they are familiar with Chinese traditions. With adequate welfare systems, it seems that both the country and returnees are the beneficiaries. Yet, whether it is possible to achieve the goal depend on solutions suggested by policy and the degree of implementation of policy instruments.

### ***Realization of establishing high-quality workforce***

The long-term goal for the policy is to attract more overseas talents, while the current situation is that not all talents intend to return. It is hard to say whether it is possible to attract all levels of overseas students (including high-level and others), as the current policy has not been promulgated for long. Therefore, the policy focus could be changed in the future and the policy implementation process could be hindered by an unperceived factor. Thus, based on the current resources - the small-scale of highly skilled returnees, is there any possibility to establish high-quality workforce? To emphasize the starting point, returnees brought in by HEIs, R&D institutes, state-owned enterprises and other private sectors will be more relevant and applicable to reform the structure of leadership, academic authority, and new innovative hi-tech entrepreneurs. However, the object will be barely achieved without the realization of individual values and exertion of their capacities (whether they can make achievements and whether they are capable of doing their jobs). Therefore, it is hard to control the progress and measure the achievement.

### ***Employment mechanism reform***

Bearing in mind what was discussed in Chapter 2, Chinese traditions used to employ talents via “guanxi” rather than depending on individual’s ability. This is a serious disadvantage of the employment mechanism. However, to reverse the situation is a great challenge for Chinese society. It is difficult to change people’s mind and to realize justice and fairness without breaking up relationships. Thus, it is a long-term process to reform the employing mechanism. To a small-scale, this objective could be achieved through the realization of establishing high-quality workforce.

Basically, the policy objectives set correspond to policy problems identified in section 5.1.1. One could argue, it is difficult to perceive the potential threats to success directly from policy objectives. Whether those concerns (returnees’ abilities, traditional consensus and welfare systems) really matter? Returnees’ abilities and traditional consensus are difficult perceived from the policy instruments, as they are the intangible factors which to a certain degree could be evaluated by substantial tools. Moreover, policy objectives could not be realized without certain measures and tools. Therefore, analysis of policy instruments could lead to some answers.

### **5.1.3 Policy normative basis**

Policy normative basis could be read out from policy problems and policy objectives (Gornitzka, 1999). Therefore, the values and languages of overseas returnees’ policy based on the above discussion all point to the value of human capital. This perception is driven by the national strategy - rejuvenating the country by relying on science and education (Chen and Sheng, 2007), which supports the feasibility of proposing such a policy. Several scholars and publications (Smith, 1776; Lucas, 1988; Mankiw, Romer and Weil, 1992; Kelo and Wächter, 2004; OECD and World Bank, 2007) emphasis the

vital status of human capital, especially for the repayment or revenue it brings on, as the repayment could be reflected on both individuals and nations. According to this, the increasing number of overseas students has great potential to improve the level of internationalization as well as enhance the national competitiveness. As OECD (2009) indicates an increasing demand for both private industry and academia to absorb foreign talents and use their knowledge and skills, to the moment, the urgent needed talents in China are those who needed by other developed countries as well (Wan, 2006). The loss of Chinese highly skilled labour would enlarge the gap between China and other developed countries. But the most important is, it would hinder, stagnate or deplete the process of China's construction and modernizations. Therefore, it is necessary to propose relative policies to overcome the existed problems or potential threats, in order to reverse the situation. In response to the "knowledge-based society" (Daugeliene and Marcinkeviciene, 2009) and "human capital century" (Goldin, 2001), policies that promulgated are supposed to have effect on enhancing the R&D sectors: more hi-tech enterprises and parks should be established, more innovations should be invented and more new products should be patented; reforming the HEIs: transit higher education expansion to massification and finally realize universalization; and improving the structure of labour market: highly skilled people are possible to become the leading group of labour force, which indirectly guide the job market towards an opener and more justice trend. In a long-term process, the convergence of returnees will be a strong power of knowledge accumulation. Thus, the policy normative basis generally is strong. However, the feature of human capital flow makes against the stability of human resources, which is insoluble in a short-term period. In this way, the policy normative basis is not consolidated enough.

#### 5.1.4 Policy instruments

As mentioned in section 5.1.2, policy instruments applied by government could help in achieving the policy objectives. According to Hood (1983 cited in Gornitzka, 1999), there are four classifications:

##### ***Treasure: funding***

Funding as such consists of two parts. Firstly, funding which is relevant to individuals' welfare (salary, allowance, housing subsidy, health insurance and etc.). Secondly, funding which is relevant to individual's working conditions (R&D expenditures, funding for starting up enterprises and etc.). In terms of funding to support individuals' welfare, as mentioned in Chapter 4, there are explicit regulations to prescribe salary and allowance for high-level talents (salary should be 2-3 times more than other people who have no overseas study and working experience; 5 to 10 times monthly allowance but only applied to people working in HEIs and R&D institutes). With respect to housing subsidy and health insurance, relevant regulations barely state how much should be compensated. For example, *"housing subsidy should be reasonable according to relevant regulations, which is varied by regions and working units"* (RCSPY, 2007: 397). Moreover, all levels of returnees enjoy the same health care and other social welfares as other people. Section 2.3 indicated that salary offered by domestic companies was lower than that offered by foreign companies. Although the salary level for returnees is improved by certain policy, it is doubtable whether the improving strength is enough. For instance, based on the discussion mentioned in Chapter 2, the average salary for people who are working in ICT field is 6,000. According to the returnees' policy, it will be improved to 18,000 USD, which is still lower than people who working in the same filed in developed countries (60,000 USD on average in the United States). Generally, there is still a big disparity between China and developed countries. According to the housing subsidy and health insurance, the

returnees' policy has no specific regulations to prescribe measures applied in those sectors. In terms of funding to support working condition, according to Table 5, both the funding for S&T activities in general as well as funding for R&D in particular has a small proportion. Externally and horizontally, the comparison draws our attention to the gap between China and developed countries, e.g. the disparity of the proportion of funding in R&D to a country's GDP among nations; internally and vertically, the comparison draws our attention to the proportion of funding in R&D and the proportion of funding in other perspectives, e.g. proportion of funding in R&D vs. proportion of funding in rural area construction and etc. Although there are explicit rules to regulate returnees' welfare and expenditure on researches (assurances and facilities), and ways of applying for venture capital investment, funding as an instrument should be not only focused on enlarging the scale, as funding for both sides are not sufficient, but also on managing funding efficiently and transparently. On the basis of limited scale of funding, the latter is much more crucial. It could reflect Chinese government's steering capacity, evaluate whether relevant policies could be implemented successfully and whether the implementation process is transparent and controllable (no abusive use). If there were no solutions for those concerns, funding as an instrument would be difficult to achieve the policy objective. To some extent, it even would result in a negative feedback towards government (no faith, no strength and no capacity etc.). Considering the above issues, funding as an instrument is not as efficient as government expects.

### ***Nodality: information***

The ability for government to send out useful information depends on to whom it aims at. With respect to returnees' policy, delivering relevant policies and regulations is via government website (MOE), official documents and mass media. Government agencies, such as CSC and CSCSE, handle issues concerning returnees (managing relevant programmes and funding, transferring the latest information), while mass

media is the best instrument to publish relevant news. It's very efficient to transmit government's opinions via diversified instruments. In a way, the information sent by government depends on the information it collected. Government agencies may have difficulty in collecting information. For example, they have no organized data system. Data provided by government have no explicit categorizes (how many returnees hold bachelor, master, doctoral and postdoctoral degree? how many years they spend abroad and why they choose to return?) Therefore, the consequence of the raw data reflects the vague policy problems. Another concern is about the capacity of relevant sectors to collect information, which could be compensated by the non-government agencies. As mentioned in Chapter 4, the overseas communities (WRSA-COSA and Shanghai subsection SORSA) could transfer information given by government to people who staying abroad. It will also provide suggestions according to current situation. The feedback it delivers could possibly help government to readjust and estimate the information they sent.

***Authority: regulations***

In order to support the implementation of overseas returnees' policy, central government has promulgated a series of regulations. According to RCSPY (2007), those regulations mainly activate in the following aspects: identify who could be regarded as high-level highly skilled personnel (*Circular of Transacting High-level Highly Skilled Identity for Returnees* proposed by MOE in 2002); prescribe how to apply funding for highly skilled people taking part in certain programmes in both long-term and short-term circumstance or establish their own business (*Regulations on R&D Funding for Returnees* promulgated by MOE in 1998; *Circular of Establishing Pioneering Parks for Returnees* proposed by MOP in 2001 ); regulate how to solve enrolment issues for returnees' children (*Provisions on Enrolment Issues for Returnees' Children* proposed and promulgated by MOE in 2000) and etc. The gradually completed and systematic formation of relevant regulations facilitates the implementation of returnees' policy, as those regulations attempt to solve substantial

problems. Yet, those regulations are not as complete as central government expected. Then, the discussion of the implementation of local regulations in section 5.2.4 may have a more explicit picture.

### ***Organization: administrations***

Returnees' policy has very explicit division of labour: central government (MOE, MOP, MST etc) is responsible for proposing relevant regulations and rules for returnees, while the subordinate units (e.g. CSCSE of MOE) and local government account for operating detail issues. However, as those regulations are handed down from top (central government) to bottom (local government), the consequences of implementing each regulation are varied among regions. Some provinces have a better achievement than others when implementing the returnees' policy. With respect to data presented in Chapter 4, returnees are more likely to go to relative developed areas, such as Shanghai and Beijing. To most extent, the competency of local administration is depended on their economic conditions. Poor regions hardly afford the expenditures in supporting returnees, therefore, the funding base in poor regions are lower than that in developed regions which will consequently have a negative effect in implementing certain policies.

### ***Programmes***

Above all, the project-oriented approach could be regarded as the combination of all the instruments. With respect to Spring Sunshine Plan, it has regulations for short-term returned high-level returnees; it provides adequate funding for returnees to embark on their careers; it has the administration - MOE to manage the process of the programme and a platform to send out information (MOE website). However, the programme would rather have an advertising effect, for the temporary returned scholars. With respect to the pioneering parks, it has regulations for returnees to establish business in those parks with relevant funding, in which local government is responsible for managing issues concerning pioneering parks and send relevant

information. Although the project is in the trial process, more pioneering parks are established according to section 4.3.

### **5.1.5 Policy linkages**

#### ***Reform and open-up policy***

Reform and open-up policy, which focuses on improving China's economy, has changed China's political economic and social environment since 1978. This policy and returnees' policy interact with each other. On the one hand, the former acts like a precondition which supports the feasibility and implementation of returnees' policy, while the latter to a large extent is based on the permission of talents mobility ("going and coming freely") and better economic condition. Without the reform and open-up policy, the returnees' policy would barely have a chance to be put into effect. On the other hand, reform and open-up policy concentrates on economy growth which could be possibly supported and realized by the initiatives of human capital accumulation, such as transformation of R&D achievements, revenue for venture capital investment in pioneering parks and hi-tech areas etc.

#### ***Higher education enrolment expansion policy***

The increasing trend of students going abroad in the developing phase (1992-2006) demands us to ask why they wanted to go abroad. For the sake of studying abroad, it may be inferred that Chinese higher education system cannot fulfil public demands. Firstly, the modernization of Chinese higher education system, which has a short history, is far behind systems in developed countries. Secondly, the expansion of higher education enrolment scale shortens the gap among graduates from different HEIs. For instance, enrolment expansion is not only meant to increase the number of HEIs, but also to expand the enrolment rate in each university. In such a circumstance,



both graduates from key universities and other ordinary universities have a big proportion, which could eliminate the predominance in labour market of graduates from key universities. On the other hand, the difficulty of maintaining the quality of higher education brings pressures to employers (feeling difficult to select suitable talents). Thirdly, although the enrolment expansion could reduce the inequality of access to schools, National Entrance Exams for Universities<sup>16</sup> to most extent will highlight the inequality of access to key universities. For example, people who failed in this exam would lose the chance of going to key university or studying key disciplinary fields, even though they may have the chance to go to universities (ordinary universities or private universities). They want to choose the best or the ideal universities and subjects. Consequently, to become more competitive in job hunting and pursue better quality of education, more students choose to study abroad. Therefore, the enrolment expansion policy and returnees' policy has a close connection. Enrolment expansion policy drives the progress of students going abroad. The number of students going abroad will be increased without efficient reform of Chinese higher education system. The increasing number of returnees could accumulate more potential sources for China's construction and modernization. Mutually, returnees' policy helps Chinese higher education system to become more consolidated. Returnees with top knowledge and skills in certain fields could devote to the construction of higher education system and become the main power in certain fields (leadership, academician).

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<sup>16</sup>National Entrance Exams for Universities or National Matriculation Test consists of three main subjects (English, Math and Chinese) and two categorizes (student of science or student of arts). Students select their ideal universities and subjects according to their grades before universities publicize the admission lines for each major (every major has different admission lines). Students' choices (by filling applications) are usually based on rational forecast according to previous admission lines. Therefore, if the grade is less than the admission line, they will fail to go to universities they choose.

## **5.2 Analysis of Shanghai municipal policy**

### **5.2.1 Policy problems**

According to the policy document (RCSPY, 2007), Shanghai municipal policy is made to address a series of major problems in relation to issues concerning returnees. However, “major problems” are not clearly stated in policy document. Identified from the policy document, Shanghai municipal policy attempts to address problem as: the deficiency of high-level highly skilled labour force. It seems that this problem is as similar as problems addressed in the national policy; however, problems addressed in Shanghai municipal policy are in accordance with Shanghai’s current situation and its own features. The specialization of Shanghai’s social-economic status attracts more returnees to embark on their business in Shanghai. Apart from government’s promotion, the strong economic background, rapid economic growth and the internationalization level stimulates all levels of returnees to stay in Shanghai unhesitatingly. Consequently, the quality of Shanghai’s labour market is much higher than the average level, and it is close to saturated in certain degrees (low requirement on other levels of employees). According to Yao and Luo (2003), Shanghai’s labour market requires a big proportion of high-level highly skilled people in certain fields wherein overseas returnees plays an important role in constructing the “talents highland” and confronting the needs of entering WTO. The advantage of Shanghai’s labour market results in the economic disparity between West China and East China at the same time.

### **5.2.2 Policy objectives**

The policy objectives of Shanghai municipal policy could be summarized as *“implementing the national strategy-relying on science and education to develop the country, build a talents highland and optimize environment for returnees”* (RCSPY, 2007: 527). The first two objectives correspond well to the policy problems as identified in section 5.2.1. The local policy, on the one hand, intends to control the capability of Shanghai’s labour market, in order to ease its pressure and make use of all the talents. On the other hand, it selects high-level talents that fulfil the demand of its labour market, in order to remain its leading position and perform as an example for other cities to follow. However, the third objective - optimize environment for returnees, means to provide better working/living conditions for returnees. Especially for those who attempt to establish companies, government should propose relevant preferable regulation and provide adequate and systematic services. Likewise, the possibility of realizing those goals depends on the policy instruments it applied, therefore discussion in section 5.2.4 will be quite important to perceive the potential threats.

### **5.2.3 Policy normative basis**

Based on the same context, it is difficult to draw differences on policy normative basis between national policy and local policy. At the local level, perceived from policy problems and policy objectives, the policy normative basis is focused on the value of human capital as well. However, it depends on the quality rather than quantity. Although 2001’s national policy indicates the importance of high-level talents, 1992’s policy also does effect and attaches importance on all levels of talents. It means that

the central government generally concentrates on enlarging the scale of all levels of returnees (disregard their academic background and working experience), while Shanghai municipal government prefers urgently needed highly skilled returnees in certain fields, which should be relevant to the demand of Shanghai's strategic industries and fulfilling the requirement of urgent needed labour force in major programmes (RCSPY, 2007). Quality as such, intends to address the academic background and working experience of returnees. This also intends to encourage returnees to devote to the places where they are needed most, in order to make use of their capacities properly, help them make great achievements and realize their values. In a sense, it prevents brain waste as well. To some extent, Shanghai's source of low- and middle-level labour force is that of middle- or high-level labour force in relative poor regions.

#### **5.2.4 Policy instruments**

Policy instruments applied in the national policy also have effects on Shanghai municipal policy. Nonetheless, policy instrument applied in Shanghai have special features. There are explicit regulations that prescribe how to apply housing subsidy and resident permit for returnees in Shanghai. In terms of organization, as was discussed in previous sections, local government is more capable of dealing with specific works and achieving tasks. Such as distributing jobs to each local bureau- "*all relevant working units should provide services to support returnees*" (RCSPY, 2007: 527); provide sufficient funding where the funding scale and proportion to GDP has both increased according to Table 6. Considering the project-oriented approach, it is the first time that local government proposes specific programmes (10,000 Programme and Pujiang Talent Plan), which pertinently bring in high-level highly skilled personnel in urgent needed fields and also is an innovative example for other

cities. To trace the progress of those programmes, Shanghai government pays much attention to distinguishing types of returnees (start up own enterprise or work as an employee). Nonetheless, with respect to Figure 4, number of returnees starting business in Shanghai has decreased from 2001. It could be argued that the environment to establish own business is not yet mature or the policy is lack of insight and ability to solve potential problems, which yields to present situation and demands further development. However, the trend is not obvious enough to attract governments' attention.

#### **5.2.5 Policy linkages**

Externally, Shanghai municipal policy is connected with other policies as well (enrolment expansion policy, reform and open-up policy). Internally, it has a tighter connection with the national returnees' policy. The innovation of Shanghai municipal policy furnishes and incarnates the national policy. Throughout the analysis of other four policy elements, one could find that Shanghai municipal policy in many aspects is similar to the national policy. The similarities mainly concentrate on 2 points: the same policy normative basis - tight interaction with each other; the same policy linkages to other policies. Thus, one may argue whether it is meaningful to distinguish local policy from national policy as they are under the same context and assigned similar tasks. Indeed, China is quite a unique case. Central government proposes the national policy and hands down to the local government. In the process of decentralization and marketization, local government, which has more autonomy than before, could reformulate the national policy which is more articulated on the basis of its current situation. To a large extent, the local policy readjustment makes the policy implementation feasible and operable because the national policy concentrates on "wide" (generalize the implementation of a given policy) rather than "deep" (specific

regulations with regional features). Therefore, the multi-level policy analysis exemplifies the process of policy readjustment and gives inspiration for the policy development in the future.

Nonetheless, the differences between policies at the two levels are quite crucial. With respect to the preceding discussion, the local policy has the following features: 1) narrower focus on policy problems; 2) more explicit policy objectives; and 3) the innovation in policy instruments. Different from policy problems addressed in national policy which intends to enlarge the scale of all levels of overseas returnees, the Shanghai municipal policy narrows down the focus and concentrates on high-level returnees (explicitly indicates what kind of returnees are needed by emphasizing returnees' academic background and working experience). With an explicit policy objective and the ample policy instruments, it is easier to achieve the goal. In such a circumstance, local government consistently brings in highly skilled personnel in certain fields (which has been regulated in the local policy) and tracks their status quo. Therefore, it is possible to pin down the problems they confront and give feedback to policymakers.

### **5.3 Policy's impact on brain circulation**

#### ***The notion of globalization***

There is no direct indication stated in returnees' to support globalization or prescribe the degree of China integrating with the world. Yet, "going abroad and coming back freely" more or less embodies the policy initiatives on globalization. Talents flow connects China with the outside world. In such a circumstance, returnees' policy therefore improves the degree of China's open-door process. Nonetheless, as mentioned in previous sections, the level of a country integrating with the outside

world is largely depended on linking returnees' policy to reform and open-up policy. The reform and open-up policy, which is a long-term national strategy, has been implemented for more than 30 years since 1978. Consequently, the interaction between China and other countries becomes more and more active. According to Table 1, Figure 1 and Figure 2, the number of students going abroad has consistently increased since 1978. Besides, a dramatic change happened in the third phase. In comparison with pre-1992 period, the level of international cooperation and competition across-the-aboard has been improved significantly when China entered WTO in 2001 (Li, 2008). This could be perceived from Figure 2, as number of students going abroad has tripled from 2000 to 2002. Thus, China has strong intention to open its gate and collaborate with other countries.

### ***The notion of dual citizenship***

As indicated by Tung (2008), China does not recognize the dual citizenship. Therefore, in order to attract the overseas talents, Chinese government has to adopt an efficient method to supplement this point. In 1992's national policy, it indicates that those who have foreign nationalities should renounce their Chinese nationalities, while 2001's policy adopts a palliative rule - they can maintain their foreign nationalities when they return to work. In another aspect, instead of requiring overseas talents return to China, it would rather "plea"<sup>17</sup> them to return and serve the country, in which disregard how long returnees can return and provide them various job forms (7 jobs provided by the national policy and 12 jobs provided by the local policy). However, dual citizenship is still a disincentive, as the temporarily returnees will leave the country again. Although it seems there is no movement barrier for people holding foreign nationality entering China, comparing to countries that recognize dual citizenship (the United States, Canada and etc.), it's quite inconvenient to apply for the visa again and again. Besides, the visa fees will increase the cost of return.

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<sup>17</sup> In Tung's article (2008), she illustrated that General Secretary Hu Jintao's impassioned speech to overseas students.

### ***The notion of no movement barriers***

In the Chinese context, there are many Chinese emigrating to the developed countries but seldom foreigners immigrating to China. On the one hand, there are no movement barriers for Chinese overseas talents to move out of or move into the country: whether they can stay abroad depends on emigration laws in foreign countries rather than Chinese government; nonetheless, as Chinese government has proposed a number of regulations to support their return, it is easy to perceive the extent to which the policy is effective. On the other hand, Chinese government has not paid attention to immigration laws, while developed countries have quite integrated emigration systems (Sun; Ji; Wang, 2005). Nevertheless, *Regulations on Approval of Permanent Residence of Aliens in China* promulgated in 2004 by MPS and MFA, in which prescribed how to apply for Chinese permanent residence permit<sup>18</sup> (General Office of the State Council, 2004). However, this *Regulations* is too strict to be generalized, such as the requirement of a certain length of resident period or of a large-scale investment in China. Besides, due to lack of an efficient administration and an explicitly legal support, it is difficult to deal with issues concerning foreigner. NPC member Qing Ye offered a proposal for establishing Migration Bureau in 2009's two sessions (NPC & CPPCC), which could be regarded as a good start (China Newsweek, 2009).

### ***The notion of boundaryless careers***

It is difficult to estimate to what extent highly skilled people are willing to change jobs across nations. However, to discuss *boundaryless careers* is to explore relevant economic aspects that may have effect on choosing jobs, i.e. more job opportunities, better working conditions, better career development. With respect to returnees' policy, the above discussion indicates that there is an increasing demand for all levels of

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<sup>18</sup> The application of Chinese permanent residence permit includes 7 rules, such as direct invest in China and have good tax record in last three years; urgent needed talents; occupy important headship for 4 consecutive years, live in China and maintain good tax records more than three years; regulations are applicable to their children and spouses etc. People who can fulfill any of those rules could apply for the permit (General Office of the State Council, 2004).



returnees at the national level and for high-level returnees at Shanghai municipal level. However, the types and scale of highly skilled people restrict the development of other fields. Especially, the returnees' policy stresses those who have science background (especially applied disciplines) are the urgent needed talents. For arts students, the policy seldom mentions the necessity of attracting them. On the basis of China current situation, this may be helpful to improve the economic development. However, it is difficult to perceive the future threats. It could be argued that this policy focus will influence the discipline structure of higher education system. It may be towards the trend of enhancing science development; yet, the construction of soft-pure disciplines is fragmentary. **The working condition** has been touched upon by the national policy, such as welfare system and salary level. However, it is difficult to track how much is paid. Compared to the national policy, the Shanghai municipal policy is more explicit in proposing relevant regulations, i.e., people who have the same professional titles and ranks, overseas high-quality people should be paid at least five times more than others. This could be a driving force for returnees staying in Shanghai. **Career development** refers to the ability to choose career paths/research topics, the access to better research facilities/assurances and improve individual's social status (Zweig and Chen, 1995). Domestic enterprises/units will attach great importance to the personal development of returnees, in order to make them stay for long. Conversely, returnees will feel they are held in high regard. With new projects and programmes introduced, people can have a wider choice in research topics. For example, overseas students can submit a proposal for establishing enterprises or joining/starting certain programmes. Once the proposal is approved, they will be fully funded by central/local government. However, Zweig and Chen (1995) also indicate that China has a weak research environment. People may have less autonomy in directing their research.



## CHAPTER 6 CONCLUSION

### 6.1 Summary

#### *National policy vs. local policy*

With respect to overseas study and return policy, Chinese government shifted the emphasis of the work in the developing phase - from “study” part to “return” part. At the same time, the visible increasing number of returnees symbolized a great progress in this phase, which could reflect that policy to most extent had an effect on attracting overseas talents. By analyzing the national policy, it can be concluded that the national policy has several characteristics in relations to the five policy elements:

- 1) Policy problems are not explicitly stated in policy document. Nonetheless, the choices of policy problems could be indentified from various sources and in accordance with factors which contribute to brain drain;
- 2) Policy objectives correspond to national strategy and are identified from the government documents;
- 3) Policy normative basis is based on the value of human capital;
- 4) Returnees’ policy implements a number of diverse policy instruments to achieve policy objectives, which can be seen as quite effective;
- 5) Policy linkages are twofold: first, returnees’ policy has mutual connections with other policies at the national level; second, the interconnection of returnees’ policy at different levels consolidated its coherence.

Ideally, the national policy should be comprehensive and applicable to all levels of returnees, and feasible to all regions (both poor and rich regions). Yet, it has a strong focus on attracting high-level highly skilled in certain fields and no substantial

regulations proposed for other levels returnees. Besides, the regional economic disparity makes it difficult to evaluate the policy impact, as returnees are more willing to go to rich places.

Shanghai municipal policy, which is guided by the national policy, has many similarities with the national policy. Generally, the Shanghai municipal policy is coherent with the national policy. Nonetheless, it has different characteristics with respect to each policy element (except the policy normative basis). As identified from the local policy documents, the local policy is made to address the problem of limited number of high-level highly skilled returnees. With a narrower focus of policy problems, the policy objectives are explicitly indicated in the local policy document: relay on science and technology to develop the country, build a talents highland and optimize the environment for returnees. With respect to the policy instruments, apart from instruments applied by central government, Shanghai municipal government has innovated various regulations and programmes to support the policy. Besides, the implementation process of local policy instruments at the local level is more innovative than that at the national level. On account of the policy linkages, the local policy is more explicit in comparison with the national policy

In general, the analysis of policies at both levels shows that government attaches great importance to high-level highly skilled personnel, and seldom proposes substantial regulations for other returnees. According to this, it could be inferred that government encourages overseas students to gain foreign working experience and attracts them back later on. This implication corresponds to the features of the phenomenon of brain circulation. Therefore, brain circulation to some extent has been initiated by the policy. Nonetheless, there are still many concerns about the policy content. The policy problems are ambiguously addressed at both levels, which could have effect on setting up policy objectives. On the other hand, the policy instruments which consist

of various tools also have shortages, such as lack of funding, lack of governments' capacity on managing and controlling funding and programmes, and deregulations of relevant rules and institutions. Therefore, suggestions for improving the policy which will be discussed in section 6.4, may be helpful for the policy development.

## **6.2 Summary of policy impetus**

From the policy analysis it could be concluded that Chinese returnees' policy is important and effective for brain circulation. Thus policy to most extent becomes the main impetus and drives the progress of brain circulation. With respect to the four factors that contribute to brain circulation, the factor - globalization can not be directly perceived from the policy documents. However, linking returnees' policy to reform and open-up policy, one can perceive the degree of a country integrating with the world. Therefore, the returnees' policy does have indirectly effect on the factor - globalization. In terms of dual citizenship, legally, China does not recognize the dual citizenship. Instead, it allows high-level returnees to maintain their foreign nationalities could be regarded as a replacement. Moreover, it provides various jobs to attract overseas talents, disregards their nationalities and simplifies the visa formalities for them, which eliminate the movement barriers for Chinese overseas talents return. To a certain degree, the dual citizenship does symbolically appear. However, without the legislation support, this factor is quite unstable which may affect returnees' interests. With respect to the boundaryless careers, returnee's policy has more practically effects. There are many causes could influent returnees' choice of changing jobs. All those causes are depended on the status of a job. From the policy analysis it could be concluded that China' policy is focused on improving the welfare issues towards high-level returnees via a series of substantial regulations. In comparison with Shanghai municipal level, those regulations are lack of strength and effectiveness at the national level. Thus, in response to the positive return trend, the

national policy needs further improvement.

### **6.3 Comments on analytical framework**

The analytical framework is essential to discover the focus of policies at both levels, find out similarities and differences between the two, and evaluate the relationship between policy content and factors for brain circulation. Especially, the policy analysis tool is effective to analyze the policy instruments. The clear definitions of policy instrument help in evaluating returnees' policy: whether it is feasible to be implemented and whether it is possible to realize the policy objectives? The policy analysis tool also is useful to evaluate Tung's four factors, in which it finds out to what degree the policy is connected with each factor. Nonetheless, throughout the discussion, it could be argued that the analytical framework is not perfect enough. On the one hand, by following the sequence of each policy elements, the thesis finds that some elements are quite difficult to be perceived. For example, Chinese policy documents is not used to state problems that a given policy is made to address, as Gornitzka (1999) indicated that some policies are "solution driven" rather than "problem driven". From the policy content, it could be argued that the returnees' policy is driven by solutions, for various solutions it provided. However, various sources determine that a series of existed problems should be redressed at the same time. On the other hand, with respect to factors (globalization, dual citizenship, no movement barriers and boundaryless careers) that stimulate brain circulation, policy to most extent has indirect connections with globalization, dual citizenship. In particular, the factor - no movement barriers is barely perceived from the policy analysis. Besides, the relationship between dual citizenship and no movement barriers is ambiguous, where the replacement of dual citizenship has resulted in no movement barriers for Chinese overseas talents in a way.

## **6.4 Suggestions**

### **6.4.1 Suggestions for further research**

Due to the time is limited, the present study has several limitations which require further research on the issues of human capital flow, in order to perceive the future trends of brain circulation. Thus there are two suggestions for further studies. First, the insufficient China's statistical data system could have effect on the validity and reliability of the findings. A systematic and precise data system is required. But, this is difficult to achieve according to current situation. Thus, the present study suggests that researchers could construct data system (if possible) by themselves and focus on certain industries and enterprises. Second, the comparison between status quo of Shanghai and that of China could neglect some unperceived problems which rarely occur in developed areas. Therefore, a comparison between developed regions and less developed regions will be necessary.

### **6.4.2 Suggestions for policy improvement**

China's statistical system and the policy preference indicate that the policy has many shortages. Thus to improve policy for future developments, the present study offers the following suggestions:

- 1) Statistical data system should be completed and improved. As mentioned in preceding chapters, Statistical data provided by government have no clear classification. Besides, statistics on the duration of students going abroad are also helpful to draw differences in relation to policy improvements.

- 2) Government should not only focus on attracting high-level talents, but also propose relevant regulations in relations to different levels and types of returnees. Therefore, the study suggests to construct the “evaluating system”, which could reflect individuals’ ability and prevent the waste of resources. At the same time, as indicates by Zhang (2004), the completion of stimulating mechanisms for returnees, such as “advanced scholar” is also necessary.
- 3) Although scholars (Xiao, Wang, Zhang and Zhu, 2005) state that substantial issues, like salary, house and insurance welfares have been solved by the policy, the strengths on each aspect (enlarge the scale of funding, apply a flexible information platform - WRSA-COSA and make the governance more transparent) should be improved.
- 4) Chu (2004) argues that there is a “weird phenomenon” - lack of talents and overstock of talents. This dilemma is caused by the policy preference on talents with science background. Thus, the present study calls on equal opportunities for all types of students.

Above all, even though there are many concerns about the national policy and the local policy, the national policy and the municipal policy seem rather effective and feasible to boost the progress of brain circulation. The national policy, as a general principle, provides a fundamental platform and gives more autonomy to local government; the Shanghai municipal policy is innovative in accordance with its own features. Thus, the phenomenon of brain circulation happened in Shanghai is largely depended on the policy initiatives. With a positive return trend, more returnees will devote to China’s construction and modernization and help in contributing to China’s social and economic development.



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